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A Clinical Lecture
ON
A METASTATIC MYSTERY.

Delivered at University College Hospital on Oct. 11th, 1905,

BY SIR W. R. GOWERS, M.D. LOND., F.R.S.,
CONSULTING PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—I have been asked to give you the first clinical lecture of this winter session. Many of those present, I doubt not, have just effected the transition to the Hospital, which constitutes the mid-point of the student's career. Others see, not far away, the gate of exit, beyond which lies an unknown future. To those who are beginning their clinical work and to those who are near its end, the case I have chosen as my subject presents much that should instruct and also much that can hardly fail to interest. It presents pathological features of extreme rarity and yet sufficiently related to that which is common to be useful. It constitutes, moreover, a good example of diagnostic method and of this you cannot have too much. It also shows how direct and important is the relation of the sciences some of you have just mastered to the work on which you have now entered.

When I say that you cannot have too much of diagnostic method I mean that the power you will hereafter need, the power of discerning the nature of disease, can only be gained by constant exercise. You should systematically follow the process of diagnosis in every case, observing its elements and their relative weight. Avoid the easy habit of taking in the diagnosis as a whole and being satisfied with the recognition of the disease. It is only by thoughtful perception of the reasoning, which varies in detail in every case, that you can gain the ability to deal in like manner with cases that are unfamiliar. This power will come unconsciously. Some cases differ from their type but little, others much; many have no type to correspond to. You will know too well what the "unfamiliar" means after your exit from student life, when you are engaged in actual and perhaps solitary practice. A very able fellow student of mine said to me, a year after he had entered on general practice, "When I was at the hospital every case was quite clear to us and we could see exactly what it was. In practice I am continually meeting with cases which puzzle me entirely, which are not like anything I have seen before." That will be the future experience of most of you. My friend, however, was mistaken in thinking that all cases were made clear at the hospital. The elements of the diagnosis were made clear; their weight and relation were pointed out; but sometimes the diagnosis had to be left uncertain. It must be so with every faithful teacher. We must always remember that it is the balance of evidence that determines diagnosis. The sciences concerned with disease deal largely with probabilities, almost wholly so in internal medicine. The probability varies in degree, but is usually falls far short of certainty. We must learn to take probability as our guide. We have to act. To act we must decide, and to decide we must weigh the evidence and deal with the probable as if it were certain. Sometimes we shall be wrong, but generally we shall be right; if we hesitate between two opinions we shall be powerless. Remember also that in practical life, in dealing with patients, the habit of discerning the probability and acting decisively is all-important. Nothing is so necessary to every practitioner as the confidence of his patients. To gain that he must manifest some measure of confidence in himself. If you must wait before forming even a probable opinion, at any rate be decided in delay. Remember, decisive hesitation is far wiser than hesitating decision.

I said that many cases conform to no recognised type with which we are familiar. This is especially true of cases of diseases of the nervous system. The only way to deal with them is to perceive what the symptoms mean, individually and combined, and to treat each case as if it were a new problem. The case I am going to describe to you is an instance of this. A man, 44 years of age, was admitted to the National Hospital on May 8th last because he presented evidence of palsy of certain cranial nerves. This had come on a month before. He had been ailing for a year, ever since a fall, 14 months before admission, to which he ascribed all his trouble. The fall was not a bad one. Although he came down 12 feet, it was down a ladder; he only hurt his left leg and this not enough to prevent him going on working. He did not strike his head. Ever since, he had suffered from slight diarrhœa, from slight discomfort in the abdomen, from some vague feeling in the head called "giddiness," and lately from some headache, chiefly occipital. We could not understand how such symptoms could have been caused by the fall and it is doubtful whether they had any relation to it. Patients assume, quite rightly, that all symptoms have a cause, and also, often wrongly, that obtrusive symptoms have an obtrusive cause. They seek this, and they find it in any impressive antecedent. Always scrutinise carefully alleged causes. Indeed, we also may be misled. It may happen, by mere coincidence, that an event precedes symptoms and seems adequate to cause them which has no relation to them. Sometimes the apparent cause does excite symptoms which are really due to other disease. A man injured his left arm and soon afterwards had a fit, starting in that arm; but it was the first symptom of a tumour of the brain. A boy, aged seven years, was once admitted here because he had swallowed a piece of slate pencil and a few hours afterwards had a fit. A week or two later evidence of glioma of the pons was distinct and from it he died. A healthy boy ought not to have a fit because he swallows a bit of slate pencil and we should always look beyond the excitant. You are sure, in your future work, to see cases in which vomiting, which seems the result of an unwise meal, is the first symptom of tuberculous meningitis. Thus you should scrutinise also apparent causes as well as those that are alleged.

The nerves paralysed in this patient were the fifth, sixth, seventh, and eighth on the right side. No others were even impaired. The right eye could not be moved outwards. All parts of the face were paralysed; the eyelids could not be closed, the forehead could not be wrinkled, and a smile or movement of the mouth occurred only on the left side (Fig. 1). There was complete loss of sensation in the region supplied by the fifth nerve, including the right side of the tongue. The masseter and

FIG. 1.

Aspect of the patient, showing the immobility of the right side of the face, the wasting of the temporal and masseter muscles, and the keratitis.

temporal muscles did not contract and were conspicuously wasted, leaving the zygoma unduly prominent. When the mouth was opened the lower jaw deviated towards the right. You know this symptom; it is due to the palsy of the external pterygoid. The condyle of the jaw was drawn forward only on the unaffected side and the jaw deviated towards the side of the paralysis, as the tongue did when protruded. The cornea was opaque and a slight ulcer had formed on it. The patient was deaf on the right side, deaf even to sounds conducted through the bone—which reach the labyrinth directly. This proves "nerve deafness," as it is called, and shows that the cause is in the labyrinth or auditory nerve. The face is paralysed in all parts (as it was in our patient), only when the disease is in the nerve or its nucleus. Electrical examination showed the same fact. The nerve and muscle alike had lost excitability by faradism. This showed

degeneration of the motor fibres and therefore disease of the nerve, separating them from the nucleus, or of the nucleus itself. These nerve palsies were the only definite symptom. There was no trace of hemiplegia, no hemianopia, and no optic neuritis in the left eye. The right disc could not be seen on account of the corneal opacity. This also prevented double vision, just as we obviate it by a ground glass before the eye that has a muscle paralysed. The onset of these symptoms had apparently occurred a month before admission. The patient said that one morning he noticed some impairment of movement of the face; this increased and was soon followed by the deafness, numbness, and deviation of the eye. The cornea had become opaque only during the last week or two. We have always to remember that the time at which a symptom attracts attention may not indicate its commencement; it only shows when it attained an obtrusive degree. One symptom that is recognised directs attention to others which might otherwise have been unnoticed. Still, it was clear that the nerve palsies had come on about a month before admission and had developed rather rapidly, but not in an actually sudden manner.

Symptoms which come on together, as these did, are presumably due to a single cause. Where could a single lesion have produced the nerve palsies? Their character, that of the facial paralysis in particular, shows disease of the nerve trunks or the nuclei, and the nerve trunks could only have suffered together at the base of the brain, beside the pons. Thus the question is narrowed to these two possibilities. But the nerves were completely paralysed. Their nuclei could not be destroyed within the pons without damage to many other structures. No rapid destructive process could have spared the motor tract, with some degree of hemiplegia as the result. The damage must therefore have been outside the pons.

The onset was not sudden and therefore could not have been hæmorrhagic. Nor could it have been hæmorrhage for another reason: it would have caused damage much wider than the destruction. This consideration applies also to another process—inflammation. The mode of onset is that of a focal inflammation, but this is never restricted as the lesion here must have been. Total interruption of the facial, auditory, and fifth nerves would involve an area of great intensity, around which a slighter degree of damage and interference with nerve function would be certain. The bulbar nerves on the one hand and the third nerve on the other would have suffered in some degree. Thus meningitis was precluded by the combined limitation and intensity of the symptoms and hæmorrhage by the mode of onset. The only other morbid process which could rapidly damage the nerves outside the pons is compression by a growth. To this diagnosis we were thus reduced.

Before going further let me point out the significance of certain symptoms of the paralysis of the fifth nerve. Disease of its sensory fibres from any cause is often attended by pain, it may be severe pain, referred to the distribution of the nerve. It is due to irritation of the fibres, and most lesions which destroy also irritate. This patient had suffered slight sensations of discomfort in the side of the face and forehead, but nothing that could be called pain. In this fact we had some confirmation of the diagnosis that there was a non-irritating compression of the nerve rather than inflammation. The other symptom is the affection of the cornea, the neuro-paralytic inflammation as it is termed. It brings before us the whole question of the trophic influence of nerves, which is too large a question to be considered now, but some points are relevant to our special subject. Except the muscles (and perhaps the viscera) the nutrition of all the tissues of the body is influenced by the sensory nerves. How we do not know. It was once thought that there are special trophic fibres; some think so still, but evidence of their existence is difficult to discern. The tissue-elements seem to have their own vitality and yet to be dependent on the state of nutrition of the nerves to a degree which varies in different structures. If the nerves of a limb undergo slow degeneration the skin maintains its integrity but often presents a slow impairment of nutrition, becoming thin and glossy. But if the nerves are the seat of an acute irritant degeneration the skin becomes liable to acute trophic changes. The least pressure may cause a blister and even a slough. Of all the structures of the periphery the cornea seems to possess the least independent vitality, to be most dependent on the condition of its nerves—that is, of some fibres of the fifth nerve. Their nutrition depends on the cells of the Gasserian ganglion. A lesion of the nerve in front of the ganglion causes the eye to suffer readily, one behind the ganglion very rarely. If the ganglion itself is diseased the effect is necessarily similar to that of a lesion in front of it. The danger is greatest during the stage of degeneration of the nerve-fibre. When the ganglion is removed in the operation for neuralgia, with strict aseptic precautions, there is little irritation, but it is necessary to keep the eyelids fastened together to prevent any irritant particles reaching the cornea, so readily is its nutrition disturbed. In a few weeks the danger is over. There is no longer changing nerve nutrition to pass to the tissue elements. The nerve fibres have disappeared; the cornea is insensitive but its inherent vitality maintains its integrity. On the other hand, an irritating lesion of the nerve inevitably causes acute inflammation which often spreads to the whole eye.

In our patient another source of danger was added to the palsy of the fifth nerve. The facial nerve was paralysed. The eyelids could not close over the ball and free it from irritating particles. Fear is sometimes expressed lest the eye should suffer from this cause in simple facial palsy; but, if the fifth nerve is unaffected, slight conjunctivitis is the most that occurs. Here the eyeball had lost the nerve influence and was also constantly exposed to extraneous irritation. The fact that only the cornea suffered was evidence of the non-irritant character of the degeneration of the nerve fibres. The fact that it did suffer was evidence that the lesion of the fifth nerve was not behind the Gasserian ganglion, but involved the ganglion itself. Thus the condition of the eye, when all was considered, was evidence of the same character as the absence of pain,—that there had been slow simple compression.

To return to the diagnostic problem. We assumed a growth beside the pons as practically certain. What was likely to be its nature? The course of the symptoms showed that it was a tumour of rapid growth which had completely impaired the nerves and yet was limited in its effects. It must be outside the pons, springing from the membranes or bone. The man had had specific disease 23 years before. Specific growths seldom occur so late after the primary disease, but the shaft of one tibia was strangely thickened from some process long past, probably specific. So he was put on iodide and mercurial inunctions to seize the slenderest chance of doing good. For nearly a month he continued in the same state. The cranial nerve symptoms remained unchanged, neither better nor worse. The inflammation and ulceration of the cornea continued, increasing a little in spite of treatment but not spreading to the deeper structures. There was no extension of the symptoms. There was still no trace of hemiplegia and still no trace of optic neuritis. Moreover, there was very little headache. We could not ascribe the arrest of the symptoms to the treatment, because there had been no increase from the time of his admission before the treatment could be effective, and if the treatment had induced the arrest of the symptoms this would certainly have been followed by their speedy diminution.

Then came a startling revelation which dispelled all uncertainty as to the nature of the case. One day he complained of pain behind the left iliac bone; a large soft swelling was found there beneath the glutei muscles. It seemed as large as half a cocoanut and had certainly not been conspicuous a week before. It was thought to be an abscess. Mr. C. A. Ballance operated and found that it was a large soft tumour, attached by a small peduncle to the iliac bone, near the sacrum. It was taken away and when examined with the microscope it was found to be composed of cylindrical epithelium in glandular arrangement separated by tracts of fibro-cellular tissue. The tumour presented the same structure throughout; it was a cylindrical epithelioma. The bone beneath was found to be intact.

The significance of the growth was this: it must have been secondary. Such a cylindrical epithelioma could not arise at the back of the ilium; it can only arise when there is tissue of the same kind. Such tissue lines the gastro-intestinal canal and it is here that such a primary growth most frequently arises. This quickly growing tumour, springing apparently from the periosteum of the ilium, must therefore have been secondary; hence we could not doubt that the tumour at the base of the brain, beside the pons, was also a secondary tumour of the same nature. Where was the primary tumour? There was an intrinsical probability that it was in the gastro-intestinal mucous membrane

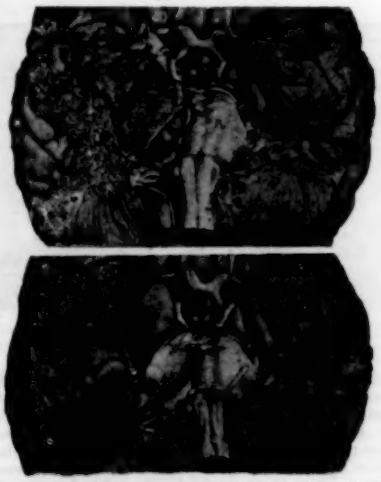
and the patient's constant slight diarrhœa gave support to the assumption. The rectum is the most frequent seat of such a tumour, but it seemed normal as far as the finger could reach and no fragments of growth could be found in the stools. The wound healed well but the patient went on losing flesh and complained of pain in the left leg. In the first week of July, a month after the operation, another growth was found at the place whence the first was removed. It had a broad base, evidently attached to the iliac bone, and increased so rapidly as to attain the size of half a cocoanut in a few days. Soon afterwards a similar but smaller growth was found in the corresponding position on the right side. Then a small soft tumour was found on the front of the left tibia near the head and soon another near it and another on the head of the right tibia. They were evidently attached to the periosteum. The first tibial growth, after attaining a size of two inches by one and a half inches, distinctly lessened in size and became harder, diminishing ultimately to one and a quarter inches by one inch. This is noteworthy, because it enabled us to understand the apparent arrest of the intracranial tumour. I left town at the end of July but the patient lived on, becoming weaker and weaker until August 20th. The changes during the last three weeks of life indicated a rapid development of secondary growth. The head of the right tibia, on which a growth existed, became considerably enlarged and tender and the knee-joint became distended with fluid. A nodule of growth could be felt beside the anus which increased rapidly until the lowest part of the rectum was surrounded by it. In the right iliac fossa a mass became perceptible which soon reached the level of the crest of the ilium and passed down into the pelvis. The liver became enlarged and tender. The tumours behind the iliac bones increased more slowly towards the end but that on the left side attained 11 inches by nine inches and then lessened to ten inches by eight and a half inches. That on the right became six inches by five inches. The diminution of the left was attended by increased softness.

Besides the pain in the legs, first in the left and then in the right, the only marked sensory symptom was an area of loss in the left gluteal region. These symptoms were doubtless due to local interference with the nerves. Towards the last the condition precluded accurate observation but there was thought to be general loss of feeling on the legs. Even to the end there was no trace of hemiplegia, or extension to other cranial nerves, or optic neuritis. During the whole time he was in the hospital there was never more than occasional and trifling headache.

The amount of new growth found after death was startling, considering that most of it had developed during the last two months of life. Besides the growth around the lower part of the rectum, the recent formation of which had been observed, another was found at the junction of the descending colon and rectum which I doubt not was the primary tumour. The wall here was the seat of a dense growth, half an inch in thickness, and at the inner surface of the rectum was an ulcerated surface whence it seemed that an internal tumour had sloughed away. Externally there was no connexion with the bone but above were some enlarged glands. In the neighbourhood were some rectal polypi. The lower rectal growth had also penetrated the wall of the rectum and it also was unconnected with the bone. The liver contained many nodules, large and small, of recent formation. In one lung were two minute nodules of the same nature, the larger less than a half pea in size. With these exceptions every secondary growth was connected with bone and had apparently sprung from the periosteum. The tumour on the left iliac bone was almost diffluent from degeneration of its tissue and contained many small calcareous spicules, while the bone beneath it was eroded. The huge mass of growth in the right iliac fossa was connected with the inner surface of the right iliac bone and had developed entirely behind the peritoneum. The growths on each tibia had clearly sprung from the periosteum and that on the right had penetrated the substance of the bone, infiltrating most of the head of the tibia. Between the tenth and eleventh dorsal vertebræ was a small tumour which had invaded the bony substance of each. Another growth lay on the thoracic surface of the eighth dorsal vertebra. On the surface of the right parietal bone, near the middle line, was a slight prominence, a centimetre in diameter, beneath which the bone was perforated by a new growth, which on the inner surface was adherent to the dura mater.

The cause of the cranial nerve palsy was found to be that which we surmised. There was a tumour at the side of the pons, compressing it, and obliterating almost all trace of the fifth nerve and the Gasserian ganglion. It caused a deep depression on the pons, just stopping short of the lower edge, and above passing outwards on to the adjacent temporo-sphenoidal lobe. The sixth nerve was on the inner edge of the growth. This had infiltrated the whole substance of the bone below it, the temporal and adjacent parts of the sphenoid and occipital bone. The growth had, of course,

FIG. 2.



The upper figure shows the pons and adjacent parts with the tumour divided from its extension into the bone. The lower figure shows the depression of the pons, &c., when the tumour was removed.

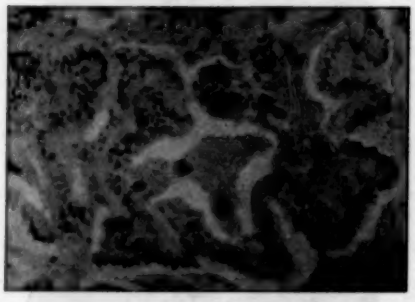
invaded the internal auditory meatus and probably it was here that the facial and auditory nerves were destroyed. It had perforated the dura mater and the microscope showed the new growth in its interspaces; the smooth nodular surface was covered by the pia mater, which was nowhere invaded. Clearly the upward growth of the tumour had become arrested early, although the infiltration of the bone had been progressive. We could not but wonder that this had caused so little pain.

At another thing, also, we could not but wonder. The deep depression in the pons produced by the growth was almost in a line with the pyramids, and it is strange that there was no trace of hemiplegia. It is an illustration of the tolerance of conducting nerve fibres to unirritating, slow compression. Examples of this are not rare. So far as we can discern such compression causes a narrowing of the white substance of the fibres and if not carried to an extreme degree the axis cylinders remain intact. As long as they are uninterrupted and the white substance does not break up conduction goes on, whether perfectly or not is, perhaps, a doubtful point. Some surprise may be felt at the absence of optic neuritis. This effect of intracranial growths, although it may result from meningeal growths which only compress the brain, is less frequent from them than from invading tumours.

The minute pathology of the case has yet to be investigated thoroughly but I may say that every growth presented the same structure. In the spine and cranium, tibia and liver, as in the rectum, it was alike, consisting of follicles lined by columnar epithelium. The interstitial tissue, of fibro-cellular nature, varied in amount and character in different parts; in most it presented many cells, in some parts few. The layer of small nucleated cells behind the epithelium, from which this is produced and regenerated, was in some places rather thicker than in ordinary epithelium and an over-production had resulted in cells of rounded form behind the layer which lined the follicles. The glandular structure was equally conspicuous in the growth which had infiltrated the bone. Except in the latest growths the indication everywhere was that the secondary formation had begun in the deeper layer of the periosteum and developed

both externally and into the bone. Secondary epithelioma of the bone has been occasionally met with but I have failed to find any record of a case in which it was the special, and apparently for long the only, seat in which the infective particles took root. Moreover, Dr. W. S. Lazarus-Barlow, the director of the Cancer Research Department at the Middlesex Hospital, has kindly examined the tabulated post-mortem records of malignant disease there, which number 3300, and has not found a similar case. But the important thing regarding any fact is not how rare it is but what is

FIG. 3.



Structure of growth at base of skull. × 100.

its significance. The infecting material of this growth found the fittest nidus for development in a structure that would seem quite alien. The fact must have a meaning but this has yet to be discovered. It is not useless to ask such questions; they give point to future observation. One suggestion the fact surely affords—that the periosteum may be a fitter place than would be thought for experimental inoculation, even with growths farthest removed from it in apparent structure.

The facts have also another significance. The nature of the infective material of such a growth seems not yet surely known. We may conjecture that it comes from the formative cell layer behind the columnar epithelium. The position of the secondary growths shows that the systemic infection must have been through the blood. This is the rule in epithelioma, as you know, while in ordinary cancer it is by the lymphatics. Some, indeed, say that in epithelioma secondary extension by the blood only occurs after the glands have become affected. This the case before us scarcely supports, for the affection of the glands was apparently late. Note, however, that the material which gave rise to at least nine secondary periosteal growths must have passed freely through the pulmonary capillaries. The two minute points of growth in the lungs cannot have formed long before the end. Until then no particle can have been arrested.

Consider the meaning of this free passage through the lungs. You know how small the pulmonary capillaries are. The largest are scarcely so wide as two red blood corpuscles. The tumour germs cannot have exceeded this size. The name "germ" is surely merited, for they possessed the potentiality of giving rise to a complex structure, ever the same, with vast capacity of growth. We cannot think that those which gained a place suited for their development were the only germs that entered the circulation. It is more reasonable to think that these were but a few of a large number, most of which perished in the blood; perhaps breaking up and, being duly "opsonised," they became victims of phagocytal energy. But we cannot doubt that the germs given off into the circulation in the earlier periods were uniform in minuteness and perhaps in size—a fact of great importance to those who are now engaged in the investigation of malignant disease.

I called my subject a "metastatic mystery" and the substantive has surely been justified. So perhaps has the adjective, if we use it in the sense that is now general, as equivalent to "secondary." But that was not its original meaning. It was first used in a special and narrower sense. The word means a *change* of situation, just as "metamorphosis" means a change of form. If a tumour ceased to increase, or became smaller, when a secondary growth was formed, the process was called "metastasis." The idea which underlay the word was that there is a causal relation between the development of a second growth and the arrest or diminution of the first—that the vitality of the first lessens by a transfer to the second. It is as if morbid developmental energy did not suffice for both. This idea has been generally given up and you may search even in the best modern text-books of pathology without finding mention of it. At first sight this case may seem to give some slight support to it. Certainly an arrest seemed to occur in some of the earlier growths as later formations increased. This was conspicuous in the tumour within the skull. Although it infiltrated the bone it cannot have increased within the cranial cavity after its manifestations were produced. Yet we must note that this process of apparent arrest was partial only, for the infiltration of the bone went on. One tibial growth, indeed, did shrink, but elsewhere the process of growth continued. The apparent arrest may perhaps be explained by the influence of mechanical restriction. If these soft tumours cannot invade a resisting structure, the restraint seems to hinder the increase of their softer elements by which their bulk is chiefly augmented, and the fibrous development of the interstitial tissue makes them firmer and perhaps by its contraction smaller. Thus the features which seemed to give a shadow of support to literal "metastasis" are capable of another explanation and do not justify the original idea.

Though I desire to set you thinking I would not leave unsolved problems and unproductive thought the last impression on your mind. Let me ask you, rather, to take away some common-place lessons from the uncommon case we have considered. One of them is the importance of giving weight to any anomalous symptom, however slight, if it is persistent. In this man, the diarrhœa from which he suffered, though never great, had gone on for months before he had any other definite symptom. It was doubtless due to the primary disease and was its only definite manifestation. We recognised its significance when we perceived the nature of the iliac growth and I cannot say that we could earlier have suspected its meaning. But it clearly teaches us the wider lesson I have mentioned. The case illustrates also the fact that in practical medicine we should always be prepared for surprises. Now and then we are surprised when we should not be. Our thought is apt to run in grooves from which it does not readily escape. We often fail to recognise changes in symptoms when they come on slowly, and are inconsistent with our previous conception, and when at last we are confronted with the unsuspected we are prone to blame the disease rather than ourselves. This also is a rather wider lesson than the case presents, but it is important, and I would urge you to cultivate the habit of viewing a chronic case afresh from time to time; ignore what you have thought of it; put yourself in the place of a fresh observer and try to see if it thus bears a new aspect. It is not easy, but the ability will grow by cultivation.

The last lesson with which I will burden you is this. You know that when there is an intracranial tumour there is generally severe headache and there is generally also optic neuritis. This patient had but little headache, almost none during the later part of his illness, and he had no optic neuritis. Yet he had an intracranial growth. The fact may serve as an illustration of an important principle. Certain symptoms are very frequent in a given disease; their presence may make that disease certain. But their absence does not prove that the disease does not exist. Neglect of this rule is one of the most fertile sources of error. Always bear in mind that the positive and negative are seldom interchangeable.

BRISTOL HEALTH COMMITTEE.—At the meeting of the health committee of the Bristol city council held on Nov. 21st Mr Colston Wintle, L.R.C.P. Lond., M.R.C.S. Eng., was re-elected chairman.

PLYMOUTH WORKHOUSE INFIRMARY.—At the meeting of the Plymouth board of guardians held on Nov. 21st plans for the erection of a new workhouse infirmary were selected and they will be sent to the Local Government Board for approval. The building will provide accommodation for 300 patients and 22 nurses, and the cost is estimated at £30,000, which is £100 per bed. It is intended that the wards shall be grouped centrally round the present administrative block and on the garden attached to the present workhouse premises.

A Clinical Lecture

ON

A CASE OF CEREBELLAR ABSCESS DUE TO INFECTION THROUGH THE INTERNAL AUDITORY MEATUS.

Delivered before the Students at the Royal Free Hospital on May 23rd, 1905,

BY E. W. ROUGHTON, B.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL.

MANY of you will probably remember a case of cerebellar abscess which I operated on in March last. The case was one of much interest and illustrates the difficulties one has often to contend with in cases of ear disease complicated with intracranial trouble. It is also an example of a somewhat rare way in which sepsis may spread from the ear to the brain. Let me first of all state briefly what the case was. It was a case of chronic disease of the middle ear, in which infection spread to the cranial cavity *viâ* the internal auditory meatus, reaching the lateral lobe of the cerebellum and producing a large abscess. At first the arachnoid cavity was shut off by adhesions around the internal meatus and the symptoms were vague and deceptive; subsequently, infection spread to the general arachnoid cavity and speedily proved fatal, although the abscess was opened and drained. I will now give you a more detailed history of the case and of what happened.

The patient was a man, aged 25 years, who was admitted to the Royal Free Hospital on March 11th, 1905. Eight years ago he had a discharge from the left ear and was under treatment for six weeks; he had had a slight discharge at intervals ever since. Six months ago the discharge increased in amount and became offensive. On Feb. 24th he was taken ill with headache and giddiness and two days later vomiting which continued until March 1st. The headache and general malaise continued and on March 8th facial paralysis on the left side was first noticed. When admitted on March 11th the patient was pale and thin and he looked ill and exhausted. The thoracic and abdominal viscera were normal. The temperature was 100·4° F. and the pulse was 100. He complained of severe headache in the frontal and occipital regions but not more on one side than the other. There was a copious purulent discharge from the left ear. After the meatus was cleansed a mass of granulations was seen occupying the middle ear. There was no redness, swelling, or tenderness over the mastoid. He could not hear a watch but bone conduction was normal. The right ear was quite normal. There was complete paralysis of the left side of the face. The pupils were equal and reacted to light and to accommodation. There was slight lateral nystagmus but no oculo-motor paralysis and no optic neuritis. There was no paralysis of the tongue, arms, or legs, and sensation was everywhere normal. He had no loss of coördination and his gait was normal. The knee-jerks were present and not excessive, and there was no ankle clonus; plantar response flexor. I showed the patient at consultations and we all agreed that the case was one of chronic ear disease with intracranial symptoms, probably due to some inflammation of the meninges in the neighbourhood of the temporal bone but none of us thought that there was an abscess of the brain. We considered that the facial paralysis was probably due to bone disease involving the nerve in the aqueductus Fallopii. On March 13th the bowels were well opened after calomel. His headache was better but he had vomited once during the night. The temperature was 100° and the pulse was 80. On the 14th he had much headache after a bad night. The temperature was 102° and the pulse was 78. On the 16th the nystagmus was more marked and slight weakness of both external recti was noticed; diplopia was present and optic neuritis on both sides was seen; the knee-jerks were diminished, especially on the right side. He had tenderness from the left ear, along the base of the skull, and under the occipital protuberance. The temperature was 101° and the pulse was 96.

Operation.—Under chloroform the usual mastoidectomy incision was made and the pinna and cutaneous lining of the auditory meatus were turned forwards. The electric burr was applied at the supra-meatal triangle and an opening was made in the direction of the mastoid antrum. The latter was found to be deeply situated, quite three-quarters of an inch from the surface. The bone overlying it was hard and ivory-like and was considerably encroached upon by the lateral sinus and the middle fossa of the skull; the dura mater in both situations was exposed, there being scarcely room for the burr between them. All the parts exposed presented very little pathological change; the dura mater was quite healthy, and the antrum, beyond containing a little inspissated pus and granulation tissue, was normal. The middle and posterior fossæ of the skull were explored to the extent of about an inch by insinuating a probe between the dura mater and the bone but without discovering any pus or anything else abnormal. The tympanum was then cleared out and the mastoidectomy completed in the usual way. As I found so little evidence of intracranial extension I did not think it advisable to proceed to explore the brain. I decided to wait and see what improvement followed the mastoid operation. On March 17th the patient had passed a fairly good night and seemed to be much better. He had no pain and felt hungry; the temperature was normal, the pulse was 96, and the respirations were 20. He seemed to have regained some power of closing the left eye. I began to hope that the operation would relieve all his symptoms. On the 18th his condition was decidedly worse. He was very restless and tried to get out of bed. There was marked inequality of the pupils, the right being the larger. The knee-jerks were not obtained. The plantar response was extensor. There were some anæsthesia and loss of power in the right leg and arm. The optic neuritis was well marked. I then decided to explore further.

The second operation was performed at 1 P.M. The original incision was extended backwards and a large flap turned down exposing the whole of the superior curved line and the portion of the occipital bone below it. A trephine opening was then made below the lateral sinus and behind the sigmoid sinus. This was enlarged with bone forceps so as to expose an area of two square inches of dura mater lining the posterior fossa of the skull. The dura mater was slit up and the lateral lobe of the cerebellum began to bulge into the wound. A pair of sinus forceps was thrust into the brain substance and almost at once opened an abscess cavity evacuating about one and a half ounces of pus. A rubber drainage-tube was inserted; hæmorrhage was arrested and the flap was stitched in place. The patient died at 9 P.M. without having recovered consciousness.

Necropsy.—There was a large abscess cavity occupying almost the whole of the left lateral lobe of the cerebellum; it extended forwards to the junction of the superior peduncle and the pons and internally to within half an inch of the mid-line. The drainage-tube entered the abscess through a large opening at its posterior and outer aspect. The anterior and outer surface of the left cerebellar lobe was adherent to the internal auditory meatus. There was a considerable deposit of yellow lymph on the surface of the dura mater surrounding the internal auditory meatus. The dura mater was not detached from the underlying bone. The roof of the middle ear on the left side showed no softening or necrosis. There was more or less general inflammation of the pia arachnoid, most marked on the under surface of the left temporo-sphenoidal lobe, where it came in contact with the anterior and outer aspect of the cerebellum, but extending to the frontal regions on both sides and to the upper surface of the middle lobe of the cerebellum. The other viscera were normal.

Such is the history of the case. Now let me draw your attention to some of the lessons to be learnt from it. The first point to notice is that this patient had a history of long-standing ear disease; it is very rare for intracranial trouble to develop in connexion with acute ear disease but you must remember that it is quite common for a patient with old ear disease to give no history of it at all and even to deny that he has had any discharge from his ears. In all cases of intracranial disease it is most important to examine the ears whether there is a history of discharge or not. A satisfactory examination of the ears is by no means always easy. I have often known students, and even practitioners, to look carelessly into an ear and mistake pus or desquamated epidermis for a diseased or perforated membrane. It is essential that the meatus should be thoroughly cleaned before

the condition of the parts can be determined. Please remember that just syringing the ear once or twice is not a sure way of getting it clean; it is usually necessary to mop it out carefully with cotton-wool twisted on a probe and to remove scales of epidermis or plugs of wax with a scoop; these manipulations must be guided by direct vision under good illumination, with forehead mirror and ear speculum. When the parts are thoroughly clean one usually sees in such cases a mass of granulations which frequently assume a stalked or polypoid character; it may be possible to detect bare bone with the probe; it is quite unusual to see any part of the membrana tympani.

When chronic ear disease involves the contents of the skull the symptoms produced are usually vague, ill defined, and often misleading. It is true that thrombosis of the sigmoid sinus often proclaims its presence clearly enough by repeated rigors and other definite symptoms, but in meningitis and abscess the symptoms are often equivocal. When the present case first came under my notice the only intracranial symptom was headache and this was equally severe in the frontal and occipital regions and on the two sides. Let me now tell you that much more severe and definite symptoms of intracranial disease may occur in cases where, so far as one can judge, there is extensive disease of the ear and mastoid process without any actual disease inside the skull; perhaps one is not justified in stating that there is no intracranial disease in these cases but it is certain that they may recover after operative treatment limited entirely to the ear and mastoid process. A very remarkable case of this kind occurred in this hospital some years ago and was published by Dr. H. Sainsbury and Mr. W. H. Battle in the Transactions of the Clinical Society, vol. xxiii. The patient's symptoms were severe, and constant headache, drowsiness, frequent vomiting, giddiness, inequality of pupils, diplopia, well-marked double optic neuritis, and pyrexia of an irregular type were present. After the patient had been in hospital three weeks it was discovered that he had a discharge from his left ear. On examination a granulation polypus was discovered. Mastoidectomy was performed and the patient recovered completely. It is quite clear from Mr. Battle's account of the operation that the cranial cavity was not opened. The moral that Dr. Sainsbury and Mr. Battle draw from their case is "that in all cases of ear disease with head symptoms sufficiently grave to call for operative interference and including even a severe optic neuritis the patient should not be subjected to the major operation of craniotomy till the minor operation of clearing away all extracranial disease has been performed." I confess that in the first operation I performed upon this patient I was influenced by the advice I have just quoted, but on subsequent consideration I think I should have been wiser to have proceeded at once to explore the inside of his skull, especially as I found so little disease in the mastoid. I doubt, however, whether the ultimate result would have been averted as the infection had probably already spread to the arachnoid cavity.

There are several ways in which infection may spread from the ear to the intracranial contents. In abscess of the temporo-sphenoidal lobe one usually finds perforation of the roof of the tympanum or antrum, and most cerebellar abscesses are in direct contact with the sigmoid sinus, infection having spread in this direction through some of the mastoid cells bordering on the sigmoid groove. In clearing out the middle ear and mastoid in such cases one usually finds a distinct guide pointing in which direction to seek for brain trouble. In the case now under consideration the infection had spread through the internal auditory meatus and of this there was no evidence whatever at the first operation. Reviewing the case in the light of the post-mortem examination it is clear that I placed an erroneous interpretation on the facial paralysis. I was inclined to ascribe the facial paralysis to extension of the ear disease to the aqueductus Fallopii. When at my first operation I found so little evidence of disease of the temporal bone I should have concluded that the nerve was involved at the internal meatus or inside the skull, but this view was apparently negatived by the fact that the tuning fork showed that the auditory nerve was not involved. One learns from this case that inflammatory matter in the internal auditory meatus may cause facial paralysis without destroying the functions of the auditory nerve. In this connexion I may mention a case of cerebellar tumour with facial paralysis recently under the care of Dr. J. W. Carr. Bone conduction was normal, but at the necropsy we found a mass of growth penetrating the internal auditory meatus. I cannot explain why the auditory nerve escaped in these two cases.

Lastly, I would draw your attention to the varying position and relations of the mastoid antrum. As a rule, no difficulty is experienced in opening up the antrum, but occasionally, as in this case, the antrum is further from the surface than usual and the bone which has to be cut away is encroached upon by the middle fossa of the skull and the groove for the sigmoid sinus. It is in these cases that the electric burr is so useful; I do not think that I could have opened up the antrum with a chisel or gouge without damaging the dura mater. Some surgeons are inclined to give up the burr, but for my own part I consider it by far the best instrument when available.

ON THE

GENERAL PRINCIPLES OF THE THERAPEUTIC INOCULATION OF BACTERIAL VACCINES AS APPLIED TO THE TREATMENT OF TUBERCULOUS INFECTION.[1]

BY A. E. WRIGHT, M.D. DUB.,

SOMETIME PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY; PATHOLOGIST TO ST. MARY'S HOSPITAL, LONDON, W.

WHAT I have to say to-night on the subject of the treatment of tuberculous infection by the therapeutic inoculation of tubercle vaccine may conveniently be prefaced (*a*) by a recital of the train of events which supervenes in the blood upon the inoculation of a bacterial vaccine[2] or, as the case may be, upon a succession of such inoculations; (*b*) by a consideration of the principles which may properly guide us in determining in the case of each successive inoculation the dose of vaccine to be administered; (*c*) by a brief account of the manner in which the organism conducts itself when it becomes the victim of a bacterial invasion; and (*d*) by an exposition of the conditions—so far as these are known to us—under which pathogenetic bacteria cultivate themselves in the infected organism.

Train of events which follows upon the inoculation of a bacterial vaccine.—The changes in the antibacterial power of the blood which supervene upon the inoculation of a bacterial vaccine were for the first time investigated by the aid of quantitative methods and upon man in connexion with my work on anti-typhoid inoculation. That work has been followed up by similar researches conducted by myself and my pupils and fellow-workers in connexion with the inoculation of Malta fever vaccine, tubercle vaccine, plague vaccine, pneumococcus vaccine, staphylococcus vaccine, streptococcus vaccine, gonococcus vaccine, proteus vaccine, and a series of vaccines made from different strains of the bacillus coli. All of these vaccines with the exception only of the plague vaccine have come into application in connexion with the treatment of the corresponding bacterial infections.

Upon the inoculation of each of these vaccines without exception there has followed one and the same train of events. That train of events is as follows. 1. Upon the inoculation of the vaccine there supervened a period of intoxication which is characterised by a decline in the antibacterial[3] power of the blood. This "negative phase" is more or less accentuated and prolonged according as a larger or smaller dose of the vaccine is inoculated. In the former case the "negative phase" may disclose itself to clinical observation by a temperature reaction and constitutional disturbance. In the latter case the "negative phase" may be quite unaccompanied by clinical symptoms. 2. Upon the "negative phase" there follows a "positive phase." This phase, whose characteristic feature is an increase in the antibacterial power of the blood, corresponds to a period of increased resistance. The curve whose trace sets forth the

[1] A paper read before the Royal Medical and Chirurgical Society on Nov. 28th, 1905.

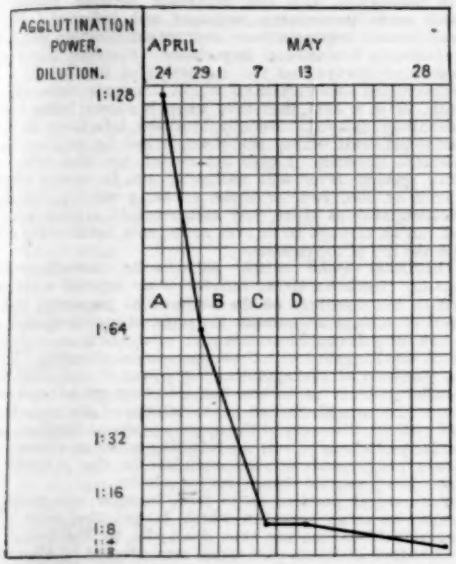
[2] The term vaccine is here and throughout this paper employed to denote a sterilised and standardised suspension of micro-organisms.

[3] The particular antibacterial element which was measured was in the large majority of cases the *opsonin*.

changes in the antibacterial power of the blood runs up in many cases into a sharp peak and sinks away first comparatively rapidly and afterwards more slowly. There is associated in many cases with the climax of the "positive phase" a sense of increased physical vigour and a very pronounced feeling of well-being. 3. After the negative and positive phase, which train of events I have ventured to speak of as the "ebb and flow and reflow of the tide of immunity," the blood may be maintained for a variable period (after tubercle inoculations occasionally for as long as a month) at a somewhat higher level of antibacterial power than before inoculation. Or—and this in connexion with inoculations with tubercle vaccine is a more usual event—the antibacterial power of the blood may over and over again fall back after ten days or a fortnight to the level at which it stood anterior to inoculation.

Train of events which follows upon the inoculation of a series of doses of a bacterial vaccine.—I originally pictured to myself that a cumulative effect in the direction of the negative phase such as is exhibited in the curve here shown (Curve 1)

CURVE 1.

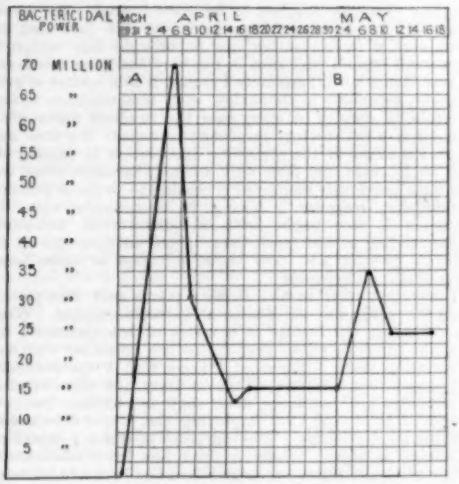


Relating to E. S., a case of tubercular cystitis, showing that a cumulation in the direction of the negative phase is produced by the inoculation of a series of inappropriately adjusted and inappropriately interspaced doses of a bacterial vaccine. A, Inoculation of 0·01 milligramme of the New Tuberculin. B, Inoculation of 0·025 milligramme of the New Tuberculin. C, Inoculation of 0·05 milligramme of the New Tuberculin. D, Inoculation of 0·2 milligramme of the New Tuberculin.

would occur in a regular manner where re-inoculation is undertaken in the negative phase of a preceding inoculation, and that *vice versâ* a cumulative effect in the direction of the positive phase such as is exhibited in the companion diagram here shown (Curve 2) would be achieved in a regular manner by re-inoculating in the positive phase of a previous inoculation. Further experience has shown me that, while cumulation in the direction of the negative phase is a phenomenon which must everywhere be reckoned with, it is in connexion with inoculations undertaken with tubercle vaccine difficult, if not impossible, to achieve cumulation in the direction of the positive phase. This is clearly brought out in connexion with the two traces in Curve 3, which show the result of an endeavour to achieve in connexion with the inoculation of tubercle vaccine a cumulative effect in the direction of the positive phase. In view of this and a number of similarly unsuccessful endeavours I now, in connexion with the inoculation of tubercle vaccine, have put out of my thoughts all idea of cumulating positive phase on positive phase. I am now content to treat each inoculation as an independent event, regulating my dose as described.

Consideration of the principles which ought to regulate the dose of vaccine.—There appears to be everywhere a fixed idea that to secure the greatest yield of protective substances we ought in each case to begin with a dose which produces a certain amount of constitutional disturbance, and that we ought in subsequent inoculations to employ doses which increase by geometrical progression. This fixed idea rests as a matter

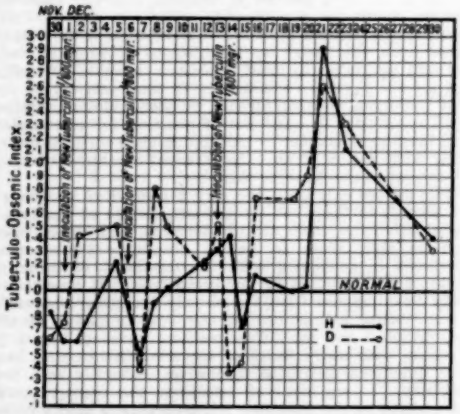
CURVE 2.



Relating to a rabbit, showing that a cumulation in the direction of the positive phase may be obtained by the inoculation of appropriately adjusted and interspaced doses of a bacterial vaccine. A, First inoculation; 5 cubic centimetres broth culture of the typhoid bacillus. B, Second inoculation; 5 cubic centimetres broth culture of the typhoid bacillus.

of fact upon the preconception that immunisation cannot be either initiated or followed up apart from constitutional disturbance, and on the further preconceptions that the capacity of the organism for immunising response is practically unlimited, and that the yield of antibacterial substances will increase *pari passu* with the dose. This is not so.

CURVE 3.



Relating to H and D, two subjects of tuberculous glands.

I obtain almost every day maximal immunising responses from the inoculation of doses of tuberculin which have not produced any constitutional disturbance. I have for periods extending over a year continued to inoculate with doses of new tuberculin corresponding to from $\frac{1}{10000}$th to $\frac{1}{500}$th milligramme of tubercle powder[4] without registering

[4] The doses hereafter referred to in this paper have reference in each case to the weight of tubercle powder employed.

any falling off in the immunising response. Again, I have in some of these cases repeatedly registered worse and not better results whenever larger doses than these were employed. Lastly, I have before my mind the fact that the horses which are employed in connexion with the manufacture of diphtheria antitoxin all sooner or later lose their power of responding to the incorporation of diphtheria toxin and recover that power of response only after a long period of rest.

In view of these facts I would submit that the whole question of dosage requires to be reconsidered. For myself I am day by day more impressed with the fact that the machinery of immunisation can be brought into action by very small stimuli, and that it can very easily be overtaxed. In accordance with these facts I regard it as a matter of great moment, especially in connexion with immunisation against tubercle, to employ in every case the smallest doses which will elicit a satisfactory response; to repeat the dose only when the effect of the preceding inoculation is passing off; and to increase the dose only when it becomes clear that the dose previously employed is ceasing to evoke a sufficient immunising response. Acting in accordance with this principle I now begin with a quantum of tuberculin corresponding to not more than $\frac{1}{10\,000}$th milligramme of the tubercle powder and now never advance to doses larger than $\frac{1}{1\,000}$th milligramme.

I may just refer to two further points and then pass on from the subject of the dosage of tubercle vaccine. Where on observing the results of a series of inoculations I find that the negative phase phenomena are becoming with each inoculation more pronounced I know that I am exceeding my proper dose. Where, on the contrary, the negative phase phenomena are becoming after each inoculation less well marked I know that I am employing the proper dose and am making good progress. The last point to which I would call attention is this. Where a dose has been administered prematurely, or where too large a dose has been administered, there may result from this, in the case where a positive phase has not yet exhausted itself, only the cutting short of that phase, or, as the case may be, the production of an unduly accentuated negative phase which is followed up somewhat tardily by a positive phase. But the case will also occur where, after the administration of an excessive dose or the premature re-inoculation, the positive phase makes default. Where the positive phase is long delayed I take it that the proper policy is not to wait indefinitely for its arrival but to reinoculate again as soon as ever the blood has come to rest with a smaller dose.

Manner in which the organism conducts itself when it becomes the subject of bacterial invasion, and discrimination of bacterial infections into (a) *bacterial infections where the machinery of immunisation is inactive and* (b) *bacterial infections where the machinery is called into action.*—Consideration will make it clear that a knowledge of the effects exerted upon the blood by inoculations of bacterial vaccines will not, taken by itself, constitute a sufficient equipment for the physician who desires to come actively to the aid of the organism when invaded by pathogenetic bacteria. It will manifestly be quite out of question for us to assist in an intelligent manner by inoculation until we have ascertained what action, if any, the infected organism is taking with respect to the invading microbes.

While we are only upon the very threshold of knowledge with respect to these subject matters, certain of the broad general principles have already emerged, and these, inasmuch as they seem to be of absolutely fundamental importance in connexion with the treatment of bacterial disease, I will venture to lay before you. It emerges in a very clear manner from the already very many thousands of quantitative estimations of the opsonic power of the blood which I and my fellow workers have conducted in connexion with many forms of bacterial disease, that bacterial infections distribute themselves naturally into two categories. In one class of infections the opsonic power with respect to the infecting micro-organisms hardly varies from day to day, remaining always inferior to that of the normal blood. In another class of infections the opsonic power is continually fluctuating—the range of variation being from far below the normal to far above the normal. These two categories of infections correspond respectively to strictly localised and systemic infections.

An explanation of the different findings in these two classes of cases readily suggests itself. We are, I think, warranted in conceiving of the low opsonic power which is found in association with strictly localised infections as a condition which dates back to a period anterior to infection. Further, we are, I think, warranted in attributing the circumstance, that the opsonic power of the blood remains, in the case of strictly localised bacterial infections persistently low, to the default of those immunising stimuli which are supplied by the entrance of bacterial elements into the blood. And we are, I think, warranted in conceiving of the fluctuation of the opsonic power between high and low, which is found in association with systemic infections, again as an expression of a periodic activation and inhibition of the machinery of immunisation, brought about by the conveyance of bacterial elements into the blood, in appropriately or, as the case may be, inappropriately adjusted and interspaced doses.

Our strictly localised, and our systemic bacterial infections, would in this manner resolve themselves into a category of infections where the stimuli which call forth an increased elaboration of protective substances make default; and into a category of infections where we have to reckon with the delivery of, oftentimes ill-adjusted and oftentimes inappropriately interspaced, auto-inoculations.

In association with this difference between infections which evoke immunising responses and infections which evoke no such responses there emerges a distinction which is of absolutely fundamental importance. Systemic infections—provided always that the machinery of immunisation is not overtaxed—are infections which terminate ordinarily in death, or in a cure, that cure when it occurs being never indefinitely delayed. Strictly localised infections do not tend to get well. They are characterised by an altogether indefinite duration. I need not remind you that, while an acute specific fever will ordinarily run its course within a limit of one, two, or three weeks, a strictly localised infection, such as lupus, may commence in earliest infancy and run on through 60 or even more years, terminating only with the life of the patient.

Conditions under which pathogenetic micro-organisms cultivate themselves in the interior of an infected organism.—With the discovery of the bactericidal properties of the blood of susceptible animals the problem presented itself as to how bacteria could maintain their existence in an organism which was furnished with these bactericidal elements. With the discovery of the agglutinating power of the blood, the parallel problem as to how the infecting micro-organisms can remain unagglutinated in the interior of the organism; and with the discovery of the opsonic power of the blood, the similar problem as to how the infecting micro-organisms can escape phagocytosis in the organism in the presence of leucocytes presented themselves for solution.

The general problem as to how bacteria can maintain themselves in an organism which is provided with antibacterial substances has been dealt with by Metchnikoff by a procedure similar to that which was adopted by Alexander the Great in the case of the Gordian knot. Metchnikoff's method of dealing with the problem is to contend that bactericidal, agglutinating, and antibacterial elements make their appearance in the blood only after this has been withdrawn from the blood-vessels. This contention—which is so congenial to everyone who desires to leave out of his reckonings in dealing with bacterial disease everything that relates to the antibacterial power of the blood—seems to me to be in conflict with the whole of the experience which is won by a systematic comparison of the clinical condition of the patient with the result of quantitative measurements of the antibacterial power of his blood.

I will ask you therefore to consider with me whether we have not a very simple solution of the problem before us in the consideration that the infecting micro-organisms cultivate themselves in the organism in every case in a region of lowered bacteriotropic pressure—i.e., in a region where the antibacterial substances are either absent or at any rate greatly reduced in amount as compared with what is found in the circulating blood.

This theory, which was first enunciated by me in a paper written in conjunction with Lamb on the distribution of the agglutinins in the organism in the case of typhoid and Malta fever, was shown by us to furnish a key to the explanation of our findings in connexion with those infections. Later this theory was shown by Lamb to furnish the key to his findings in connexion with the bacteriolysins in spirillum fever. Lastly, in conjunction with Douglas and afterwards with Reid, I have been able to show that this theory furnishes the key to the distribution of opsonins in the infected

organism, in the case of tuberculosis, and a large number of other bacterial infections.

Let me try to put the situation before you as I conceive of it in connexion with micro-organisms cultivating themselves in the tissues. I conceive that these are cultivating themselves under conditions which do not even remotely resemble those which they would have to confront in the circulating blood. In the case of bacteria in the actual blood stream all the antibacterial elements of the organism would come into application upon them. In the case of bacteria cultivating themselves in the tissues only those antibacterial elements would come into application which had passed out from the blood in the lymph in the region of infection. Further, inasmuch as lymph, coming in contact in succession with a number of bacteria, or, as the case may be, with their products, would part with its antibacterial elements to those first encountered, retaining after percolating through a first bacterial nidus to a second, or through the outer portion of such a nidus to its interior, a residual trace only of its original antibacterial power, there would come into existence, in particular in the case when the lymph-flow stagnated in the tissues, conditions far more congenial to the cultivation of bacteria than those which obtain in the blood.

Premising that I shall as I proceed, ever and anon, have to recur to the general principles enunciated in this and the preceding sections of this paper, I may pass on now to consider the application of therapeutic inoculations of tubercle vaccine in connexion with the treatment of tuberculosis. It will be convenient to take up first the consideration of the treatment of strictly localised tubercular infections. Examples of such strictly localised tubercular infections are furnished by most cases of lupus, further by the large majority of tubercular invasions of the subcutaneous tissue, lymphatic glands, serous cavities, bone, testes, kidney, bladder, and other internal organs, lastly by many apyrexial cases of phthisis.

TREATMENT OF STRICTLY LOCALISED TUBERCULAR INFECTIONS BY THE AID OF THERAPEUTIC INOCULATIONS OF A TUBERCLE VACCINE.

In connexion with the treatment of cases of strictly localised tubercular infection we have to take into account the following facts. 1. The tuberculo-opsonic power of the blood in these cases appears to be uniformly inferior to that of the normal blood. 2. The immunising stimuli which are required for raising the opsonic power and for maintaining it at a high level here make default. 3. The tubercle bacilli are cultivating themselves in the focus of infection under conditions which are much more favourable to their growth than those which obtain in the case of the circulating blood. 4. An increase of the opsonic power of the blood can be achieved and maintained by the inoculation of a series of appropriately adjusted and interspaced doses of tubercle vaccine. 5. We have at disposal methods by which we may increase the lymph flow through the focus or foci of infection in such a manner as to bring the antibacterial elements of the blood into application upon the invading bacteria.

It would be impossible within the limits of space within which I have here to confine myself to bring before you the evidence in support of all the above propositions. That evidence, so far as it relates to the first four of the above propositions, has been set forth in detail in a communication to the Royal Society made in conjunction with Douglas[5] and in a further communication made to the same society in conjunction with Staff Surgeon S. T. Reid, R.N.[6] I may therefore here limit myself to the consideration of the proposition that we have at our disposal methods for sending through the focus of infection a stream of antibacterial lymph.

Discussion of the means which are available for sending a stream of anti-bacterial lymph through the focus of infection.—The activation of the lymph stream in the focus of infection supplies the *rationale* of a number of procedures which have been empirically practised. Our grandmothers were wont to activate the lymph stream in boils—they spoke of it as "drawing the boil"—by the application of hot poultices and followed by sugar-and-soap plasters.[7] The surgeon of these latter days practises the method when he applies hot boric fomentations in connexion with the treatment of septic infection associated with lymphangitis. Professor Bier in Germany practises the method when he obstructs the circulation in a limb or, as the case may be, in the head and neck with a view to achieving an effusion of lymph. The physician, I take it, practises it in connexion with the application of his rubefacients and preparations of iodine, and possibly also when he administers expectorants with a view to what he calls loosening the expectoration. The x ray, the radium, and the radiant heat therapist practise it in connexion with the exercise of their particular professions. Lastly, as I think emerges very clearly from the facts which Dr. Bulloch proposes to lay before you, the work of the Finsen light therapist sums itself up in the practice of this method.

It seems to me all that is further needed in connexion with these methods is that they shall be employed purposefully as means to an end and not blindly as empirical methods. For I conceive that if this were done it would immediately be recognised (*a*) that the douching of a bacterial nidus with a rapidly flowing stream of lymph might in the case where that lymph possesses only very inferior antibacterial properties be associated with risk; (*b*) that the irrigation would always be more effective in the case where the antibacterial power of the blood had previously been raised either by auto-inoculation or artificial inoculation; (*c*) that an ampler lymph stream could in every case be obtained by administering decalcifying agents (such as citric acid) in such quantities as might suffice to reduce the coagulability and at the same time the viscidity of the blood; (*d*) that in the case where the focus of infection is positioned in a lymphatic gland the blood stream might with advantage be determined not only to the lymphatic gland involved but also to the whole territory which sends its lymph to that gland; (*e*) that in cases where the focus of infection is positioned in the skin and where the blood-supply to the skin is inefficient advantage might be taken of any medicinal agent, such as thyroid extract, which increases the cutaneous blood-supply; (*f*) that inoculation of old tuberculin may possibly find a useful incidental application in certain cases of superficial lupus by producing an outflow of lymph through the affected skin; (*g*) that the injection into discharging sinuses of a decalcifying agent dissolved in a concentrated salt or sugar solution may possibly be found useful in causing an irrigation of such sinuses by lymph; and, lastly, (*h*) that if the therapeutic effect of the Finsen rays should resolve itself merely into a question of determining lymph to the site of infection, it would be well in every case to preface it by inoculation procedures or, perhaps, even to use in association with these last some cheaper and less laborious therapeutic device. I would throw out merely as a suggestion that we have in the application of bags filled with hot sterilised sand[8] a very inexpensive and convenient method of determining a blood stream to any region on the surface of the body.

Digression on the results of ordinary surgical methods as applied to the treatment of strictly localised tuberculosis.—Before saying what I have to say on the subject of the results obtained by treating strictly localised tubercular infections by the aid of therapeutic inoculations of a tubercle vaccine I will, if I may, say a preliminary word on the results as obtained by methods which are believed to be purely surgical, leaving the discussion of the results obtained by the Finsen light treatment to be dealt with later in this discussion by Dr. Bulloch.

It is the belief of the surgeon—one, I take it, of his cherished beliefs—that it is possible to extirpate completely and effectively by the knife, in a large proportion of the cases with which he deals, the invading micro-organisms. I for my part find it very difficult indeed to believe that this result can often be achieved even by the most radical operations. While I have great difficulty in believing that these means can be as effectual as they are said to be, I do not—though

[5] Wright and Douglas: On the Action exerted upon the Tubercle Bacillus by Human Blood Fluids and on the Elaboration of Protective Elements in the Human Organism in response to Inoculations of a Tubercle Vaccine, Proceedings of the Royal Society, vol. lxxiv., pp. 159–180; and THE LANCET, Oct. 22nd, 1904, p. 1138.

[6] Wright and Reid: On the Determination of the Presence or Absence of Tubercular Infection by the Examination of the Patient's Blood and Tissue Fluids. This paper is about to appear in the Proceedings of the Royal Society.

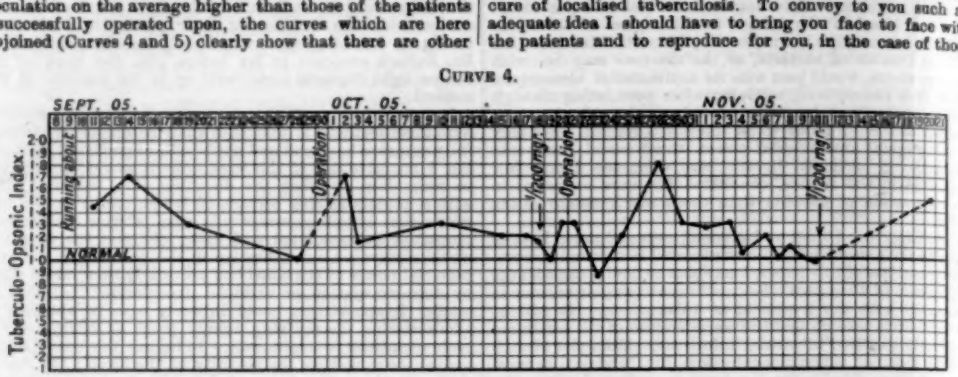
[7] Let us reflect in this connexion that the hot poultices determined the blood stream to the focus of infection, that the sugar by its osmotic power drew the lymph through the open boil, and that the soap by decalcifying the lymph prevented it coagulating and forming a scab and so blocking the outlet.

[8] For the sterilisation of the sand I am accustomed to give the following instructions. Place the sand in a saucepan over the fire, having previously stirred in a number of small pieces of white paper. Continue the stirring until, with the attainment of a temperature of 200° C., the pieces of paper have all turned brown.

this may first fall upon your ears as a paradox—find any difficulty in believing that the result which the surgeon seeks to achieve is often achieved. But success is, as I gather, obtained in some cases where the operation leaves something to be desired from the point of view of completeness; and again at other times the efforts of the surgeon come to nought, in spite of the fact that the operation has been conducted with scrupulous care. Even if we leave altogether out of account the possibility that the patients successfully operated upon may have been patients whose tuberculo-opsonic indices were previously to inoculation on the average higher than those of the patients unsuccessfully operated upon, the curves which are here subjoined (Curves 4 and 5) clearly show that there are other

On the results which have been obtained by the treatment of localised tubercular infections by the aid of therapeutic inoculations of a tubercle vaccine (Koch's new tuberculin) controlled by determinations of the opsonic index.—Returning from the above digression to take up again the main theme of this discourse, and coming to the question of the results which have been achieved by the therapeutic inoculation of Koch's new tuberculin safeguarded by systematic determinations of the opsonic index, I find myself face to face with the impossibility of conveying to you an adequate idea of the results which it is possible to achieve in the matter of the cure of localised tuberculosis. To convey to you such an adequate idea I should have to bring you face to face with the patients and to reproduce for you, in the case of those

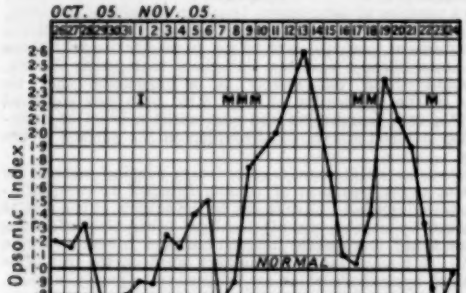
CURVE 4.



Shows the effect of surgical operation.

factors which may influence the result. There is in the first place the possibility that surgical interference with a tubercular focus may, as in the two scraping operations[9] which are in question, be followed by the whole train of events which we have learned to associate with the inoculation of a bacterial vaccine. Again, as in the initial rise of the opsonic power which is set forth in the same curve, physical exercise may be an active agent in connexion with the production of immunity. Finally, as shown in Curve 5, massage may produce effects similar to that of inoculation. When we come to reflect upon the matter there is nothing in

CURVE 5.



Shows the effect of massage. I, inoculation of 50,000,000 gonococci. M, massage.

any of this to surprise us. A conveyance of bacterial elements into the blood is precisely what might be expected from surgical procedures which open up the lymph spaces, or as the case may be from kneading operations or the activation of the lymph stream by ordinary muscular movements.

[9] The same sequence of events has already been met with in connexion with three cases. One here referred to was a scraping operation undertaken upon tubercular glands, the other two were extirpating operations also undertaken in connexion with tubercular glands. It would seem probable that similar results would be obtained also in connexion with curetting operations undertaken upon the uterus in connexion with bacterial infections.

who were suffering from external lesions, their past by the aid of photographic records. In view of my having been prevented by external circumstances from securing photographs of the cases when they first presented themselves, and in view of the circumstances that the presence of the patients to-night would have broken in in an unwarrantable manner upon this discussion, I must do what I can by the bald method of narrative, inviting you hereafter to control my statements by the inspection of the patients either at St. Mary's Hospital, or, if it shall be signified that this is the wish of the society, here in this room before the close of this discussion.

Before entering into a recital of the cases I would point out that in each case a measurement of the tuberculo-opsonic power of the blood has (with only rare and isolated exceptions) been made in connexion with each inoculation of tubercle vaccine. The burden of the very many thousands of hours of work which this has involved has been shared with me in the most devoted and self-sacrificing manner by my friends and fellow workers, Captain Stewart R. Douglas and Dr. J. Freeman. I would therefore have it borne in mind that the work which I shall here summarise is in very large part their work.

For the purpose of the summary I may classify the cases of localised tuberculosis which we have dealt with under the headings of *lupus, tubercular ulceration of the subcutaneous tissues and bone, tubercular glands, tubercular disease of the genito-urinary system, tubercular disease of joints, tubercular peritonitis*, and *apyrexial phthisis*. While we have treated, or have under treatment at present at St. Mary's Hospital, examples of each and all of these classes of cases, we have, keeping in view the importance of testing the method of inoculation in the most rigorous manner—devoted our attention in particular to cases where definite objective evidence could be obtained of any alteration in the clinical condition, and by preference to cases where ordinary surgical methods had already been unsuccessfully exploited. In conformity with this I shall in the summary below consider in particular the results obtained in the treatment of the four first-mentioned categories of tubercular infection, and will pass over in silence the less convincing though equally satisfactory results which have been achieved by inoculation in the cases of tubercular peritonitis and joint disease which we have had under treatment. I shall omit from consideration also the satisfactory results achieved in three out of the five cases of phthisis which we have treated by tuberculin inoculation. It is to be borne in mind in connexion with this very small number of cases of phthisis treated that we have, except under

very special circumstances, excluded this affection from treatment, because of the difficulty of eliminating in an out-patient department that class of phthisical patients who, being already the subject of auto-inoculations, cannot, it seems to me, except under very special precautions, safely be treated by the method of inoculation.

Lupus.—If we except one of our very earliest cases—where the results of a few weeks' treatment were, probably owing to the administration of too large doses of the vaccine, such as to discourage the patient, and to lead him to abandon the treatment—we may say that the inoculation treatment has in all the cases of lupus we have dealt with ameliorated, but so far only in one case cured, the disease. Not infrequently we have seen certain of the patches completely cured, while the disease in other regions has remained refractory. These only partially successful results, which contrast in a striking manner with those obtained in connexion with tubercular ulceration affecting the deeper tissues, depend, it seems to me, not so much upon a defective power of response to inoculations on the part of the lupus patient, as upon the inadequate manner in which the antibacterial substances come into application upon the tubercle bacilli in the case where these are disposed in a skin which is but poorly supplied with blood. I do not doubt that if it were possible to superadd to the treatment by inoculation another form of treatment which achieves, as the Finsen light appears to do, a proper transudation of lymph into the skin, the efficiency of the inoculation treatment as applied to lupus would be much greater than it has been in our hands.

Tubercular ulceration of subcutaneous tissues and bone.—The clearest and most unfallacious evidence of the advantage which can be derived from the therapeutic inoculation of tubercle vaccine can be furnished in connexion with tubercular ulceration of the subcutaneous tissues. It is not a question here of the achievement of success in a certain percentage of cases where ordinary surgical methods have failed. Up to the present, at any rate, it has been a question of uniform success. The following series of cases, all of which, except the last, are available for inspection, furnish evidence of what can be achieved by inoculation in cases which had defied all ordinary methods of treatment and which might quite well have been reckoned desperate.

[Professor Wright here read particulars of three interesting cases in proof of his contention.]

Tubercular invasion of lymphatic glands.—Next perhaps to tubercular ulceration of the subcutaneous tissue tubercular affections of the lymphatic glands furnish the clearest evidence of the efficacy of therapeutic inoculation of tubercle vaccine. This result, as reflection will show, is in accordance with what might have been expected *a priori* in view of the fact that the tubercle bacilli are here disposed right in the path of the lymph stream which is passing back through the gland to the blood. I do not myself doubt from what I have seen of the effect of inoculation on tuberculous glands that the extirpation of these by surgical methods, as well as the purely climatic treatment of this affection, are destined to give place to the therapeutic exploitation of tuberculin inoculations controlled by the determination of the opsonic index, and combined with hot sand poultices and rubefacients, or other measures which like these will produce an ampler lymph flow in the whole territory—or may I call it water-shed or collecting basin—whose lymph passes into the blood through the conduit of the infected gland.

[Professor Wright here read brief notes relating to results achieved in complicated or practically uncomplicated cases of tuberculous glands.]

Tubercular disease of the genito-urinary system.—From some points of view more convincing, in others only less convincing, than the results obtained in connexion with lesions which are directly accessible to sight and touch, are the results obtained in connexion with tubercular disease of the genito-urinary system, in particular in the cases where these involve the bladder. We have in the fact that these cases are associated with distressing pain and frequency, and in the fact that the presence or absence of tubercle bacilli in the urine can here be determined by microscopic observation, the means of measuring success and failure.

[Professor Wright here gave a brief abstract of certain cases which have been under treatment.]

In view of the very favourable and, what is almost more important, uniformly successful results which can, as will have appeared, be obtained even in the most intractable cases of localised tubercular infection by the therapeutic inoculation of tuberculin carried out under the safeguards explained above; and in view of the fact that not less favourable results can be obtained in connexion with the treatment of other localised infections by the aid of the corresponding bacterial vaccines; I do not hesitate to contend that we have, in the power of raising the antibacterial power of the blood with respect to any invading microbe, out of all comparison the most valuable asset in medicine. I would, in view of this new asset in medicine, fain induce the surgeon to abate something from his conviction that extirpation and the application of antiseptics offer in connexion with bacterial infection the only possible means of cure; I would have the surgeon resort to extirpation only when the physician tells him that all other means have been exhausted; and I would have the physician assume everywhere the rôle of an immunisator; and I would have him defer handing his patients over to the surgeon before he has tried in every case of localised bacterial infection which is unassociated with immediate risk to life the therapeutic inoculation of the appropriate bacterial vaccine.

(*To be concluded.*)

THE TREATMENT OF TUBERCULOSIS BY TUBERCULIN.[1]

BY WILLIAM BULLOCH, M.D. ABERD.,
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THE main currents of intellectual activity in the domain of pathology have flowed for the past 30 years towards the elucidation of the causes of disease. We have passed away from the earlier symptomatic and anatomical and have arrived at etiological concepts. A most important advance has been the demonstration that a number of diseases owe their origin to the invasion of the body by parasitic microbes. The doctrine that these microbes are specific has triumphed over other conceptions and may be said to be a universal belief at the present time. The aim of this absorbing and intricate study has been the construction of a scientific theory of disease and depending on this the elaboration of a rational therapy. But even this rational therapy is gradually narrowing itself down to a *specific* therapy. Remedies are being sought which lead to the exclusive destruction of the particular specific microbe which has been proved to be the cause of the given infection. Following Edward Jenner, the pioneers of bacteriology, notably Pasteur, sought to induce a prophylaxis by the inoculation, mostly in attenuated form, of the etiological agents themselves, or products derived from them. To Koch, however, belongs the credit of having been the first to attempt to *cure* an infection by a specific remedy—viz., tuberculin in tuberculosis. When we reflect for a moment on the problem which confronted Koch it will be manifest that the results of such treatment cannot be compared with those in which a prophylaxis is induced against an infection like variola, where, in the natural course of events, an extraordinary degree of immunity is established for a number of years, or for the life of the individual.

The extensive study of tuberculosis has shown that man and beast are infected to an alarming extent. In man, at any rate, the observations of Naegeli and others lead one to assume that the disposition is almost universal. If exposed to tubercle bacilli for any prolonged period few escape without some lesion. By a long acclimatisation the tubercle bacillus has become extraordinarily parasitic and seemingly incapable of multiplying its numbers outside the living body. The parasitism is also evinced in the extreme chronicity of the tuberculous processes and the fact that the bacillus is not comparable in the intensity of its pathogenic effects with the rapidly fatal septicæmic blood infections. Recently, Theobald Smith has developed the idea, paradoxical as it may seem, that the more habituated a microbe becomes to subsisting in the living tissues—i.e., the more parasitic it becomes—the less actively aggressive it is and the more it endeavours by pure methods of defence to secure a nidus wherein it may multiply undisturbed. The throwing up of cellular works in the shape of a specific granuloma by the host may thus be a disadvantage in so far that the bacillus is protected in an abode where it may sojourn until opportunity occurs for transmission to another host. It is, however, generally supposed, arguing from the analogy of lifeless *irritamenta*, that the inclosure of the alien substance by a wall of granulation tissue is a sign that the organism is endeavouring to cope with the offensive agent by excluding it.

The most recent studies in immunity to tubercle lead us, however, to conclude that the inclosure of the tubercle bacillus by a wall of poorly vascularised granulation tissue is a drawback, as the antibacterial forces which we know to exist in the body humors are kept at bay, the parasite remaining locally, and being at long intervals discharged outward. In general the defence offered by the bacillus is so powerful that only a relatively small degree of immunity is developed by the host. This statement rests on a large body of evidence and it cannot be expected, even from a remedy like tuberculin, that a high degree of immunity can be attained in a short space of time or that the curative

[1] A paper read before the Royal Medical and Chirurgical Society on Nov. 28th, 1905.

effect of this remedy is comparable to its prophylactic effect. We cannot evade the conclusions reached by a generation of medical scientists, and it seems to me that this is all the more important at the present time, when the eyes of the civilised world scan the scientific horizon with anxiety for the long-expected "cure for consumption."

The foundation of Koch's work—to my way of thinking his greatest work—was the observation that even small quantities of killed suspensions of tubercle bacilli can produce death in animals already tuberculous. By reducing the dose to very minute proportions he found in a certain number of cases that the disease can be brought to a standstill. He found, however, that the dead bacilli which he had injected remain locally for long periods and may ultimately give rise to abscesses. Whatever amelioration of the tuberculous disease had taken place must have been due to substances which passed out of the bodies of the dead bacilli injected and this gave the suggestion that such substances might be prepared artificially and injected in a form capable of rapid absorption. In this way originated tuberculin, now described as "old tuberculin" (T.O.), a concentrated glycerine extract of tubercle bacilli. When this extract was injected into tuberculous individuals the manifestations witnessed were pyrogenic and phlogogenic, the latter consisting of inflammation, leucocytic emigration, and necrosis of tuberculous foci, which were visible to the eye. Koch regarded this local necrotising action as an essential element in the cure, and the explanation of the action accepted by him was that originated by Babes and spoken of as the "addition theory," which assumed that the tubercle bacillus produces certain substances, some of which bring about a coagulation necrosis. This necrosis acts deleteriously on the bacillus and may cause its death. By the inoculation of tuberculin the necrotising effects are increased in intensity—a condition which seriously affects the vitality of the bacillus, so that ultimately a phase of tranquillity, or even cure, is established in the infected individual. The rise of temperature which accompanies the local reaction was looked upon as specific, in so far as it occurred only in tuberculous individuals. In recent years it has been shown, especially by Preisich and Heim, that the tuberculin reaction is more complicated than was originally believed. They have proved that the presence of tuberculous tissue is not necessary for the onset of the tuberculin febrile action. By transplanting collodion sacs containing the bacilli alone into the peritoneal cavity of guinea-pigs, followed by the inoculation of suitable doses of tuberculin, they have obtained typical tuberculin reactions. This reaction must be due either to substances which have diffused out of the collodion capsules, and which have united with the tuberculin to give rise to a substance which produces the reaction, or in virtue of the toxic action of the tuberculin a change is induced in the cells which renders them capable of manifesting the tuberculous reaction. Preisich and Heim have, in fact, shown that there are substances in the serum of tuberculous animals which, on admixture with tuberculin, are capable of setting up a typical reaction in normal animals. As they found, however, that such substances may be present in normal serum they concluded that the rise of temperature following an injection of tuberculin cannot be looked upon as specific of tuberculosis. The tuberculin reaction is, however, generally regarded as specific. Whatever may be the ultimate views held on the nature of this tuberculin reaction there is no doubt that 15 years ago Koch and other investigators considered that a local reaction is a necessary part of the curative action of tuberculin.

No remedy in therapeutics has suffered the fate of Koch's tuberculin. At first hailed with ecstasy as the long-sought panacea for tuberculosis, its short-lived glory was succeeded by a period of absolute rejection and then one of indifference, so that to-day it may be regarded as having dropped out of the pharmacopœia of even the serious medical practitioner. So convinced, however, was Koch of the virtues of tuberculin that he proceeded to perfect his discovery, and as he had observed that with the repeated inoculation of this substance a period of tolerance is established when the reaction, and with it, according to him, the curative properties come to an end, he strove to prolong the reaction period and achieved this to a certain extent by tuberculin A, an extract of the tubercle cultures with $\frac{N}{10}$ sodium hydrate solution. The disadvantage of tuberculin A was, however, that abscesses were frequently produced, as the bacillus remained unabsorbed for long periods at the point where it had been inoculated. This led Koch to the idea that the difficulties of absorbability might be got over by the mechanical comminution of the bacillus. To this end highly virulent bacilli were dried in vacuo and then comminuted by machinery. The dust was treated with distilled water and the mixture was then placed in a centrifuge rotating 4000 turns per minute. In this way an opalescent fluid (T.O.) and a deposit were obtained. The deposit was then worked up with successive quantities of water and was named T.R. This, under the name of tuberculin T.R., or Koch's new tuberculin, is sold in commerce in bottles containing ten milligrammes solid substance per cubic centimetre. The opalescent fluid (T.O.) possesses properties analogous to the old tuberculin, whereas the T.R., as Koch himself recognised, acts independently of a local reaction which, in fact, should be prevented at all costs. Koch, however, recommended forcing the inoculations as far as was compatible with the absorption of the tuberculin.

Following on the work of Koch other bacillary products have been recommended, such as tuberculoplasmin (Buchner), tuberculocidin and antiphthisin (Klebs), oxytuberculin (Hirschfelder), tuberculin (Denys), tuberkulol (Landmann), and tuberculin (Beraneck). These remedies have been vaunted as superior, whereas few, if any, attain even the measure of success of Koch's tuberculin. Taking them as a group we may apply the term tuberculin as a collective name for soluble or emulsionised products prepared from the tubercle bacillus. Between the years 1890 and 1897, while Koch was investigating the therapeutic value of his tuberculins, a remarkable event in medicine had interposed itself. I refer to Behring's discovery and application of serum therapy. At once it was thought that at last here was the line of real advance in the treatment of tuberculosis, but, despite the most strenuous effort, nothing even worthy of comment has been achieved by the various anti-tuberculous sera which have been manufactured, and the attempts and methods have been so manifold that one is inclined to prophesy that the era of tuberculous sero-therapy is past. What has been the result of eight years' experience with Koch's new tuberculin? Already, within a year of its introduction, a large number of authors here and abroad had written commentaries of disappointment. Others have condemned it as being contaminated or even infected with the tubercle bacillus itself. Others, again, who have given it a serious trial report that the results depend not so much in the remedy itself as in the manner of its exhibition. Authorities like Turban, Goetsch, Petruschky, Spengler, and Moeller have pronounced in its favour, even in pulmonary tubercle. With few exceptions, dermatologists do not seem to have been convinced of its efficacy. The work of a man like Koch cannot be brushed aside as fanciful, and there is, I think, no doubt at all that tuberculin is a substance which possesses remarkable curative powers in tuberculosis. Recently in this country Wright has opened up the question of tuberculin therapy and has achieved memorable results in the treatment of the localised forms of tubercle. He has shown that protective substances of opsonic nature exist in the normal serum and that the opsonic content of the serum can be increased by the inoculation of tuberculin. It is manifest from his work that the chief defensive mechanism against tubercle exists in the serum and not in the cells, as was believed, and the destruction of the bacilli by the cells must be preceded by the action of the serum. He has also elaborated a method by which it is possible to determine the opsonic content of the serum and he has utilised this determination as a guide to the inoculation of the infected individual with tuberculin. An important outcome of his studies has been the demonstration that tuberculin is an extremely potent agent and that its dosage hitherto has been excessive. I have worked a good deal with the methods invented by Wright and propose to give some of the details of this work in connexion with the treatment of tubercle, especially in its localised forms.

In his earlier work Wright noted that the opsonic index of individuals suffering from tubercle is lower than that of normal people. In order to determine whether this is constant I have examined first of all the indices of 84 healthy people, comprising 44 medical students and 40 hospital nurses. In all cases the serum was compared with my

own, which was regarded as unity. The result was as follows:—

Opsonic index of 44 healthy medical students compared with the serum of the writer = 1·0.

1 case	... ...	= 1·2
15 cases	... ...	= 1·0
8 ,,	... ...	= 0·98
7 ,,	... ...	= 0·97
2 ,,	... ...	= 0·96
2 ,,	... ...	= 0·94
6 ,,	... ...	= 0·90
2 ,,	... ...	= 0·85
1 case	... ...	= 0·80
Total 44 cases average opsonic index	... ...	= 0·96

Opsonic index of 40 healthy hospital nurses—

5 cases	... ...	= 1·1
13 ,,	... ...	= 1·0
5 ,,	... ...	= 0·98
4 ,,	... ...	= 0·97
2 ,,	... ...	= 0·96
6 ,,	... ...	= 0·90
2 ,,	... ...	= 0·85
3 ,,	... ...	= 0·80
Total 40 ,, average opsonic index	... ...	= 0·96

Taking the two series together we get an average index of 0·96 for the 84 people, the variations in health ranging from 0·8 to 1·2. Coming to cases of tuberculosis I have already published in the Transactions of the Pathological Society the determination of the opsonic indices of 150 cases of lupus occurring in the Skin Department at the London Hospital. The great majority of these cases attended the hospital for the purpose of x ray or Finsen light treatment. Compared with the average opsonic index of 0·96 obtained in normal people the average for the 150 cases of lupus was 0·75, the cases being distributed as follows:—

3 cases	... ...	Opsonic index = 0·2—0·3
3 ,,	... ...	,, ,, = 0·3—0·4
21 ,,	... ...	,, ,, = 0·4—0·5
29 ,,	... ...	,, ,, = 0·5—0·6
33 ,,	... ...	,, ,, = 0·6—0·7
22 ,,	... ...	,, ,, = 0·7—0·8
18 ,,	... ...	,, ,, = 0·8—0·9
7 ,,	... ...	,, ,, = 0·9—1·10
14 ,,	... ...	,, ,, = 1·0—1·4

75 per cent. of the lupus cases showed an opsonic index below the lowest normal limit of 0·8.

Clinical data were available whereby the results obtained by Finsen therapy could be compared with the height of the opsonic index, and on analysing these data it was found in general that where the opsonic index is well below the lowest normal limit the results of Finsen therapy have been disappointing, whereas with indices in the normal limits or above them the clinical impression has been that the cases have done well. The mode of action of the exposure to light in Finsen's method has been the subject of much inquiry. It is admitted on all hands that under certain conditions of experiment light acts as a bactericidal agent. This, however, has not been proved in the case of Finsen light, where the rays have to traverse the skin. In all probability, and the above results lend support to this view, Finsen light acts mainly by producing a local inflammation with great vaso-dilatation and a transudation of large quantities of plasma in the areas exposed to its action. If the serum is poor in antibodies the results of Finsen therapy are disappointing and this suggests that its value might be enhanced if the antitropic content of the serum were increased by previous inoculations of tuberculin. 11 cases of surgical tubercle were examined with the following result:—

1.	tuberculosis of knee	Opsonic index = 0·8
2.	,, ,, and spine	,, ,, = 0·5
3.	Tuberculous abscess of gluteal region; tuberculous peritonitis	,, ,, = 0·5
4.	Tubercle of bone for years (humerus, hip) ...	,, ,, = 0·7
5.	Tuberculosis of knee	,, ,, = 0·75
6.	Tubercle of lymphatic glands	,, ,, = 0·3
7.	,, ,, ,, ...	,, ,, = 0·6
8.	,, genito-urinary organs	,, ,, = 0·6
9.	,, ,, ,, ...	,, ,, = 0·6
10.	,, ,, ,, ...	,, ,, = 0·7
11.	,, ,, ,, ...	,, ,, = 0·6

14 cases of so-called "sanatorium cures" or arrested cases of pulmonary tuberculosis were examined and the index was found depressed in all except one. These cases were all from the well-to-do classes and in at least one of these cases, which was considered a perfect cure, the disease has relapsed within a year.

Case 1	... ...	Opsonic index = 0·7
,, 2	... ...	,, ,, = 0·6
,, 3	... ...	,, ,, = 0·7
,, 4	... ...	,, ,, = 0·6
,, 5	... ...	,, ,, = 0·5
,, 6	... ...	,, ,, = 0·4
,, 7	... ...	,, ,, = 0·6
,, 8	... ...	,, ,, = 0·65
,, 9	... ...	,, ,, = 0·75
,, 10	... ...	,, ,, = 0·6
,, 11	... ...	,, ,, = 0·5
,, 12	... ...	,, ,, = 0·45
,, 13	... ...	,, ,, = 0·6
,, 14	... ...	,, ,, = 0·86

From these determinations in healthy and diseased people it would appear that an index below 0·8 is abnormal. It is not possible to say when a low index is encountered whether the individual is already infected or is merely likely to be so. The very early diagnosis of tubercle is difficult or impossible by ordinary clinical methods. Arguing from the case of staphylococcus lesions which are visible in the skin the probability is that a very low index indicates that infection has occurred. An abnormally high index is probably a sign of infection but cannot be used as a prognostic, as it may occur in those cases which do well or in those which are quite hopeless. Repeated determinations of the fluctuations in the index are probably of more importance in forming an opinion on the future of the case.

The exact nature of the opsonic action has not yet been worked out. All investigators, however, are agreed that where different bloods are compared the variable factor is the serum and not the leucocytes. The existence of Metchnikoff's hypothetical "stimulins"—bodies which stimulate the leucocytes—still lacks demonstration. The relation of the leucocytosis, which accompanies most infections, to the opsonic content of the serum has not been made out. Bulloch and Ledingham in a large number of experiments failed to demonstrate that there is any close relationship between these factors. With certain drugs, such as sodium cinnamylicum ("hetol") and tallianine, which produce marked leucocytosis, no increase in the quantity of the opsonin could be determined. Subcutaneous inoculations of a solution of nuclein from yeast had, however, a very marked effect in producing an opsonic increase, although the leucocytosis was inconstant.

Specificity of opsonins.—This question has hitherto not been touched in the various memoirs which have appeared on opsonins. In conjunction with my assistant, Dr. G. T. Western, I have recently been able to demonstrate that a high degree of specificity exists. This has been shown in two classes of experiments. In the first the opsonic power of a serum was tested against both staphylococcus albus and tubercle bacillus. The serum was then mixed with one or other of these microbes, and after a sojourn in the incubator the mixture was subjected to the prolonged action of the centrifuge, whereby the microbe was thrown down as a deposit, the supernatant liquid being then tested for both microbes. The result of experiments of this type is that the supernatant liquid is deprived of its opsonin for the particular microbe with which it has been in contact while it largely retains its opsonin for the microbe with which it has not been digested. In the second class of experiment the serum of human beings was tested repeatedly, both against tubercle bacillus and against staphylococcus. Injections of tuberculin produced an increase in the tuberculous opsonin while leaving the quantity of staphylococcic opsonin unaltered, and *vice versâ*. We may thus assume the demonstrtion of the specific nature of the opsonins in the serum.

Effects of the inoculation of tuberculin.—In almost every instance of scores of inoculations I have observed the occurrence of a negative phase. In the cases where this has been absent it has followed a very minute dose or the same dose had been injected several times previously. The determination of opsonic curves also leads me to believe in the correctness of Wright's view that the negative phase is one of importance. It is extraordinarily variable, even where the same doses of tuberculin are given to different people. In some cases the descent is abrupt and steep, in

other cases the negative phase persists over a number of days, and frequently the subjective symptoms of discomfort on the part of the patient are increased. I have on several occasions seen a definite exacerbation of the symptoms associated with a prolonged negative phase. The maintenance of Wright's "high-tide" phase of the immunity curve is subject to great variations. In most cases, as far as my experience goes, the "high tide" is in the course of a few days succeeded by a fall again, although the fall is rarely as deep as that shown prior to the injection of tuberculin. In spite of this the improvement may continue, a fact which leads me to assume that there are other factors at work which at the present time cannot be measured. The vaccine employed was Koch's new tuberculin, as manufactured by Meister, Lucius, and Brüning, at Höchst.

CASES.

All the cases which I have had to treat have been severe. The majority of them, in fact, had passed from the hands of physicians and surgeons and were regarded as incurable. It is impossible to speak with certainty as to cure, because a great deal depends on what is meant by this term. In ordinary medical parlance there is a time element in the question and one must distinguish between a temporary and a permanent cure. Thus one of the patients I have treated was a boy the subject of tuberculous glands of the neck. An extensive operation was undertaken and the diseased glands were removed from both sides of the neck. After a residence of some four weeks in the hospital he was dismissed "cured," although there was a slight discharge from one of the wounds. But this discharge never stopped and six months later he was as bad as ever with two sinuses leading down to softening glands. By the use of tuberculin alone these glands have disappeared and the wound is completely closed, so that there is a temporary cure; but no one can say that the cure is permanent until the individual has been a long time under observation. I have treated two cases of genito-urinary tuberculosis, seven cases of lupus, and two cases of gland tubercle. The results may be briefly stated as follows, substituting the letters of the alphabet for the patient's initials.

CASE 1.—A. B., by profession a surgeon. He suffered from genito-urinary tubercle which had been operated on on several occasions. The disease recurred and it was decided that further surgical interference was impossible. A prolonged course of tuberculin, with estimation of the opsonic indices, has led to immense improvement not only in the patient's general health but in the local area where the tuberculous deposits have disappeared. He is now in relatively good health.

CASE 2.—C. D. (16), a girl weighing 3 stones 4 pounds and the subject of extensive but quiescent tubercle of the spine and genito-urinary tuberculosis. Four months' treatment has caused great amelioration in the distressing symptoms to which she had been subjected. The patient is still under treatment.

CASE 3.—E. F. (23). Phthisis on the maternal side. The patient had pleurisy at the age of ten years. Lupus began in childhood and extended over the cheek and the eyelid. Treated with x rays and 170 applications of Finsen light. Main area of disease healed up well but fresh nodules frequently made their appearance. His opsonic index on two occasions was 0·8. Four inoculations of tuberculin were given—viz., $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme. The patient was discharged apparently cured. No recurrence in two months.

CASE 4.—G. H. (18), admitted 1901. History of lupus of three years' duration, disease affecting nose, cheek, mucous membrane of right nostril, soft palate, and uvula. Besides x rays, lactic acid, trichloracetic acid, and the Paquelin cautery, he had 225 applications of Finsen light. In August, 1905, there were still great thickening and œdema of the lips; ulcerated patches on the lips and alæ nasi. Tuberculin injections $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme. Great improvement. October, œdema gone, ulcerated areas healing up. Still under treatment.

CASE 5.—I. J. (23). Lupus 20 years. Extensive area on the left cheek. Patient had 289 sittings of Finsen light and was apparently cured in 1904; relapsed repeatedly. Tuberculin inoculations begun August, 1905—$\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme. Discharged apparently cured on Sept. 23rd, to be kept under observation. No recurrence, Nov. 21st.

CASE 6.—K. L. (14). Lupus dates from 1901. Neck, cheek, and nose affected. Treatment: x rays and 388 sittings of Finsen light. In July, 1905, several nodules still remained. Tuberculin inoculated in doses of $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme; apparently cured; discharged Sept. 17th. No recurrence, Nov. 20th.

CASE 7.—M. N. (22). Lupus 17 years, very extensive. Treated with Finsen light (540 applications) off and on for five years. Tuberculin inoculations have made her seedy and apparently cannot be tolerated.

CASE 8.—O. P. (26). Lupus of 11 years' standing. A most extensive case with great infiltration of the skin of cheeks, chin, neck, and chest. Treated by Finsen light 941 times. Excellent result achieved by this treatment, but disease relapsed. February, 1905, numerous nodules. Treated with tuberculin—$\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme. Apparently cured; discharged August 20th. On Nov. 24th a few small nodules were detected.

CASE 9.—Q. R. Lupus for 20 years. By 1902 it had spread over whole face and on to neck. In 1890 she was treated with old tuberculin with benefit but it is said to have upset her health. Prior to 1902 she was scraped 39 times. Since 1902 has had 1466 applications of Finsen light. In 1904 a finger was amputated for dactylitis. In April the opsonic index was 0·6. An inoculation of $\frac{1}{10}$ milligramme of tuberculin raised her index to normal and it kept normal for three months. Since then she has had eight inoculations of $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$, $\frac{1}{10}$ milligramme. Great improvement, although much scarred from scrapings.

CASE 10.—S. T. (16). Tuberculous glands of neck on both sides. Excision of glands February, 1905. Recurrence. Sinus formation and softening of glands. Tuberculin treatment for two months. Apparently cured.

CASE 11.—U. V. (10). Abdominal tuberculosis. Weight, 3 stones 2½ pounds. Treated with tuberculin without avail. Fæcal fistula for three weeks before death. P.M.—Lower part of abdomen was a cavity containing fæces. Extensive tuberculosis with matting of intestines.

I am indebted to Dr. Western for the results on most of the above-mentioned lupus patients and to Dr. J. H. Sequeira for permission to make use of these results.

Holland-road, W.

A COMPARATIVE STUDY OF THE LINCOLN, MAIDSTONE, AND WORTHING EPIDEMICS OF TYPHOID FEVER.[1]

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[IN introducing the subject of this paper Dr. Childs laid special stress upon the remarkable parallelism in the course of the three epidemics, the evidence showing that the greater part of the primary infection took place before any warning was given through notification; the obscurity and complexity of the problems connected with explosive outbreaks of typhoid fever; our ignorance with regard to these problems; the exact and exhaustive character of the investigations required for their solution; the need of carrying out these investigations thoroughly from the first, when the medical officer of health and his staff are already more than fully occupied; and the consequent need of assistant experts in reserve, who should be trained especially for the purpose of investigating these epidemics (as well as endemic typhoid) and ready to come at short notice if applied for by the local medical officer of health.]

A SHORT ACCOUNT OF THE LINCOLN EPIDEMIC.

(1021 cases, 120 deaths. December, 1904, to July, 1905.)

The city of Lincoln (estimated population about 51,000) is built partly upon an elevated plateau of oolitic formation, from which an escarpment descends in steep slopes to the river level some 200 feet below; partly on these sloping sides, and partly on the alluvial beds which encompass the base of the escarpment.

[1] An abstract of a paper read before the Incorporated Society of Medical Officers of Health on Nov. 10th, 1905.

Previous Health Conditions of the City.

The death-rate from all causes during the decade ending in 1903 was 14·7 per 1000; in the year 1903 it was 13·4 per 1000. In 1879 an outbreak of typhoid fever occurred, causing 39 deaths in a population of about 30,000. Since 1879 the city has been exceptionally free from typhoid fever up to the time of the present outbreak.

Typhoid death-rate.—1881–1890 ... 0·22 per 1000.
1891–1900 ... 0·15 ,,
1894–1903 ... 0·135 ,,
In the year 1901 ... 0·10 ,,
,, ,, 1902 ... 0·06 ,,
,, ,, 1903 ... 0·08 ,,

Typhoid notifications.—15 in 1901, 13 in 1902, and 32 in 1903.

Development and Course of the Epidemic.

In the year 1904 only six cases of typhoid fever had been notified up to Oct. 15th. The next case was notified on Dec. 2nd, followed by another on Dec. 22nd and by nine more in the last week of the year. These nine cases plainly indicated the beginning of an invasion. During the next three weeks, however—the three weeks ending on Jan. 21st, 1905—the rate of notification declined from nine per week to 4·7, only 14 being notified during those three weeks. It was not until after the third week of January that the presence of a general invasion was realised, 547 cases being notified between Jan. 21st and Feb. 11th.

It should here be noted that in describing the course of this epidemic the dates of notification only can be recorded, since I have very incomplete evidence with regard to the dates of attack—i.e., of development of symptoms. It is generally agreed that, allowing 10 or 11 days for the period of incubation—from actual infection to appearance of symptoms—and the same period of time for the delays required for diagnosis and receipt of the notification, a period of about three weeks must be allowed for the average interval of time between actual infection and receipt of notification.

From an analysis of 141 out of the notifications in this epidemic between Feb. 11th and March 18th I found that the average time between the dates of attack and notification was 10·2 days. This result accords with the above general average and would indicate that the cases notified on a certain date were infected on the average about three weeks previously—e.g.: (1) that the preliminary invasion which culminated in the last week of December was due to infection in the first two weeks of that month; (2) that the explosive outburst of notifications occurring between Jan. 21st and Feb. 11th was due to infection in the first three weeks of January; and (3) that the great majority of notifications which occurred after Feb. 11th were due to infection contracted after the third week of January. These dates are in all probability approximately correct. More evidence, however, is needed in order to insure a definite estimate of this important question, the approximate average periods of time between the dates of infection, "attack," and notification. The question should be made the subject of careful inquiry over a long range of epidemics.

The number of notifications recorded week by week will be found in Table II. If, for convenience, we divide the series of notifications from Jan. 22nd into periods of three weeks we find as follows:—

TABLE I.

Three weeks ending—	Number of cases notified.	
Dec. 2nd, 1904	1	Preliminary invasion.
,, 31st, ,,	10	
Jan. 21st, 1905	14	
Feb. 11th, ,,	547	"Explosive outburst." General invasion: almost entirely primary cases.
March 4th, ,,	200	Probably few primary cases; majority secondary cases.
,, 25th, ,,	125	Probably all secondary cases.
April 15th, ,,	87	
May 6th, ,,	28	
,, 27th, ,,	6	
June 17th, ,,	3	
Total	1021	

Local Incidence of the Infection.

No relation was observable between the earliest cases with regard to dwelling, occupation, drainage, &c. The first four cases occurred in the upper district of the city surrounding the cathedral, the next six in the southern low-lying district about 200 feet below the cathedral and from a half to three-quarters of a mile from the first cases. The cases which followed in the early part of the epidemic were, generally speaking, remote from one another and scattered indiscriminately through all parts of the city. The incidence of the disease apparently showed no local relation to the course of the sewers of the city.

Causes of the Spread of the Epidemic.

The soil.—There is nothing in the geological contour and formation of the rocks and soil upon which Lincoln stands to suggest that the infectious material could be distributed through the medium of the soil, excepting possibly in the lowest and southern district, where the houses are built upon a porous and loose sand, with a subsoil water not far from the surface.

Milk-supplies.—More than usual attention has been given of late to the milk-supplies of the city owing to the fact that they are reputed to have given rise to certain outbreaks of infectious disease. But no indications were found of any connexion between the supplies and the incidence of the typhoid fever. In the early stages of the epidemic the cases were scattered indiscriminately throughout the city. There were apparently no aggregations of cases in the same household.

The drainage and general sanitary conditions.—The main drainage of the city, which had been very defective up to 1880, is reported to have been carried out very completely at about that date (1877–81). The sewage is conveyed chiefly in small pipe sewers to a receiving tank in the low-lying land to the south-east of the city, on the other side of the river Witham. From this tank the sewage is pumped on to the distant sewage farm. Before entering the tank the main sewer is enlarged so as to form an additional reservoir for accumulating sewage. As far as could be ascertained it appears that at first the house drains were carefully connected with the sewers. A large number of the house drains were untrapped and carried as ventilators over the roofs. It is a question whether the house drainage and drain ventilation were subsequently carried out so thoroughly. Doubtless there were flaws and defects (as unfortunately is so commonly the case) through which sewer gas escaped into the streets and houses but not to any very notable degree. So far as I have been able to judge from the reports available the drainage and general sanitary condition of Lincoln compared favourably with those conditions which prevailed at Worthing at the time of its epidemic in 1893, still more so with those of Maidstone in 1897.

The water-supply.—The water-supply of the city is almost entirely from the city waterworks. There are a few wells in various parts. There are three public taps supplied from the "Conduit Springs," which rise out of the grassy slopes on the eastern side of the city and yield some thousands of gallons per diem. This water was much resorted to when it became known that the waterworks supply was regarded as dangerous, until it also was condemned as impure on Feb. 14th. The ordinary supply from the waterworks amounted to about 1,500,000 gallons per diem or more. During the seven or eight weeks preceding the great typhoid outbreak it is supposed that this amount was increased by about from 25 to 50 per cent. owing to the fact that severe frosts occurred in December and January and the water taps in houses were kept open in order to prevent bursting of the pipes. It has been stated that during this period the water was run through the waterworks filters at a rate of 750 gallons per square yard per diem, a rate which, according to the best authorities, would allow a free passage of bacteria and thus break down this barrier of defence against the germs of disease.

The water-supply is derived partly from two impounding reservoirs (practically out of use before and during the epidemic), but chiefly from the river Witham and its two tributaries, the Pike and Catchwater "drains," all of which are sluggish streams flowing through a flat alluvial country. They are all freely polluted or liable to pollution with human and bestial excreta from adjacent homesteads and villages and from surface or subsoil drainage of fields, some of which are manured with human excreta. The river flows through Grantham (population about 17,000), between 30 and 40 miles above Lincoln; eight miles lower down it receives the effluent from the Grantham sewage farm (about 500,000 gallons per diem), and some 1200 yards above the intake wa-, until Jan. 31st, enriched by the effluent from the sewage farm of the county asylum, an institution with about 1000 inmates.

For 20 years this water-supply, on account of the obvious pollution mentioned above and of the results of chemical analysis, has been repeatedly condemned as dangerous by the medical officer of health and also by various experts. The water is filtered by sand filtration. The area of the four filters—2956 square yards—was increased up to 4396 square yards by the addition of two new filter beds in August, 1904.

The Chief Source and Channel of the General Infection.

The above conditions all point to the water-supply as the chief source and channel of the general infection—viz., the absence of any indication that the disease was conveyed through the soil, the milk or other food, the sewers or drains; the remarkable impartiality with which the cases of typhoid fever from the very first were scattered throughout the length and breadth of the city; the obvious and numerous pollutions with human and bestial excreta of the water-supply and the impairment of the last line of defence, the waterworks filters, just at the times when the first partial and second general invasion of the infecting germs have been shown to have occurred. This probability is further confirmed by the fact that (1) a great decrease of infection began to take place immediately after the time when the people were advised to boil their water—viz., from Jan. 20th to 26th—this decrease of infection being shown by decrease of notification from about Feb. 6th and afterwards; and (2) there was a marked immunity of certain individuals and institutions where either none of the waterworks water was drunk without being boiled or filtered either through a Pasteur or Berkefeld filter or water from another source was used. Owing to distrust of the water-supply a considerable number of the citizens were accustomed to use these filters. One of the leading medical men of the city told me that he had induced most of his patients to protect themselves in this way and they all escaped the infection. It would be of great service to make a detailed inquiry with regard to the number of those who had been accustomed to use these filters before last December and the number of cases of typhoid fever which occurred amongst them. There can be little doubt, then, that the primary widespread infection which took place in the first three weeks of January (the 1st to 22nd) was conveyed chiefly in the water, infecting nearly all the 547 cases which were notified during the three weeks ending on Feb. 11th. The notices warning the citizens to boil the water were three weeks too late to prevent the epidemic.

Secondary Cases.

It is almost certain that most of those who had been accustomed to drink the "town"—i.e., corporation—water untreated began either to boil it or to use water supplied from other sources soon after the issue of the notices of warning (between Jan. 19th and 25th), for a general fear of the incriminated water was established throughout the city. In the notification papers out of those notified between Feb. 25th and March 18th (and probably infected between Feb. 4th and 25th) it is stated in 117 out of 126 cases that the drinking water had been boiled either from the time of issuing those notices or at least from the last week of January onwards. From this it may be concluded that few cases were infected from the town water after about Jan. 27th—i.e., that few of the 350 cases notified after Feb. 18th could have been due to the town water. The number of instances in which second cases began to occur in houses previously invaded were comparatively rare in the early part of February (apparently not more than about 10 per cent), whereas in 121 out of the cases notified between Feb. 25th and March 18th there were 47 such instances (i.e., 38·8 per cent.).

To what Extent may the Spread of the Infection be attributed to Emanations from Drains, Sewers, &c.?

This question is perhaps one of the most difficult and complicated of all the problems in connexion with the etiology of typhoid fever. It must be confessed that one is apt to ignore the emanations from drains as a cause of typhoid fever, owing to the observations of Haldane and others, which proved that the air of sewers, generally speaking, is considerably purer, as far as the quantity and pathogenic quality of the bacteria are concerned, than the air of the street above the sewer or any air in the immediate neighbourhood. It is known that bacteria cannot escape from a moist surface, unless driven from it by force. Yet it is dangerous to form conclusions on *a priori* grounds in such complicated problems, and the number of instances in which outbreaks of typhoid fever have apparently been due to sewage emanations cannot be altogether ignored.

Some attempts were made during the epidemic by the Special Commissioner of THE LANCET to investigate this question and to trace the relation of the typhoid incidence in a certain district to the prevalence of sewer gas in the neighbourhood of the patients and he gave some instances which tended to show a causal relation between this prevalence and the number of cases. We shall all agree with him in his statement that "these incidental cases should not be taken as conclusive." Such investigations ought undoubtedly to be made in all epidemics of typhoid fever but they would probably prove rather misleading than otherwise unless they were carried out most thoroughly and persistently by a special staff of observers organised for the purpose.

Remedial Measures adopted for Arrest of the Epidemic.

After the notification of the nine cases in the last week of December it was decided to send a sample of the corporation water (which for 20 years had been so frequently condemned by the medical officer of health) to be analysed in London. The report on the analysis was not received until Jan. 16th (by which time probably most of the infection through water had taken place). It was stated that no typhoid bacilli had been found in the water but that there were indications of sewage pollution. Between Jan. 19th and 26th it is reported that 13,000 bills were distributed warning the citizens to boil their milk and drinking water. Dr. A. C. Houston (whose works in connexion with the investigation of water pollution are well known) was engaged as a bacteriological expert, and Dr. McGowan, as chemical expert, to deal with and to advise about the water-supply. As soon as possible the experts began the treatment of the waterworks filters, reservoirs, and mains, with solution of sodium hypochlorite, and had no difficulty in reducing the number of bacilli coli present in the water to less than 1 in 100 cubic centimetres, and in purifying the water to such an extent that it was purer, in their opinion, as judged by the bacillus coli test, than the best samples of tap water supplied to London. Their opinion that no typhoid germs could have existed in the waterworks supply subsequently to their complete treatment on Feb. 11th, and carried on continuously from that time, is apparently correct, unless any local reinfection of the water from dead ends and cisterns took place. The treated water, however, had a slightly objectionable taste and smell, and the citizens on the whole preferred to drink the water which was generously supplied from neighbouring towns and villages, and subsequently in large quantities by the Great Northern Railway.

In the meanwhile active and systematic measures for the arrest of infection had been carried out under the direction of the medical officer of health, Dr. C. Harrison. Unhappily, he was confined to his house by illness at the height of the epidemic and the chief sanitary inspector was laid up and subsequently died from typhoid fever. Fortunately, he secured the services of Dr. Rees Jones, assistant medical officer of health, on Feb. 3rd. Under the supervision of Dr. Harrison, Dr. Jones continued to carry out all the measures which are practicable for the arrest of an epidemic of typhoid fever, the inspection, notification, disinfection, organisation of temporary hospitals and nursing staffs, the removal of patients to hospital, and the care and segregation of convalescents. All these measures appeared to me to be carried out most systematically and thoroughly, more so probably than in any of our great epidemics of typhoid fever of the past. About two-thirds of the cases were admitted to hospital and a large number of convalescents were drafted off on recovery to temporary convalescent homes. We may well take this opportunity of recording our thanks and congratulations to Dr. Harrison and his deputy, and to those who coöpted with them, for their devoted service and for their successful contest with a serious epidemic under conditions of a very trying character.

SHORT SUMMARY OF THE MAIDSTONE EPIDEMIC.

A full account of this epidemic is given in the published Report of the Commission of Inquiry appointed by the Local Government Board (1897). From this report it may be seen that before the first notifications were received on Sept. 12th more than 200 persons had shown symptoms of the disease and probably more than 800 had already received the infection. The development and course of the epidemic, as seen in the weekly notifications (*vide* Table II.), show a remarkable parallelism with the other two epidemics. We observe the same sudden rise in the first week of the

"explosive outburst," the climax in the second, the fall in the third—in this case a slight one—and the subsequent graduated decline week after week until the end of the epidemic. The sewers, house drains, and water-closets of a large part of the town were in a bad condition, and it was suggested that the epidemic was due to these conditions. But a careful study of the evidence and the locality leaves little or no room for doubt that the primary invasion was due to infection through the water. At the outset Mr. Percy T. Adams (the deputy medical officer of health) discovered that the incidence of the disease was almost entirely confined to the area of high-level or Farleigh water-supply. The lower and middle areas of the town, supplied chiefly from grey-chalk springs at Boarley and Cossington, were almost exempt. This comparative exemption was maintained throughout the epidemic, the total number of cases per cent. of population being nine times as great in the Farleigh area as compared with the other areas of the town. Further corroborative evidence was derived from the fact that certain institutions and districts which drained into the Maidstone sewers but used a separate water-supply escaped altogether.

SHORT SUMMARY OF THE WORTHING EPIDEMICS.

An elaborate account of these epidemics will be found in the Local Government Board report of 1893–94; also in the excellent official report of the late Dr. Charles Kelly, at that time medical officer of health of West Sussex. This report is a monument of careful investigation and zealous industry. In the case of Worthing there were two distinct outbreaks notified: the first beginning in the first week of May and ending in the last week of June; the second one beginning as the first was apparently coming to an end and continuing until the end of the year. The development and course of the second epidemic bore a striking resemblance to that of Lincoln (*vide* Table II.). Similar characteristics are to be found in the first Worthing epidemic. From Dr. Kelly's table of notifications and attacks it is obvious that out of the 300 cases notified in this first invasion nearly 200 had apparently been infected before the first notification took place, whilst of the 629 notified during July more than 500 were being infected during the last three weeks of June—i.e., during the very time when it appeared from the notifications that the epidemic was coming to an end. From the evidence contained in these reports there can be very little doubt that the primary invasion was due to infection through the water. In connexion with these epidemics it is interesting to note: 1. That samples of water taken from the wells on May 2nd and 6th were found to be chemically pure and other samples taken from the wells on June 6th were reported as both chemically and bacteriologically pure. Calculating from the tables of notification and "attack" it will be seen that the first analyses were made at the time when the first series of infections had recently come to an end; the second a few days before the second series had begun. 2. The extraordinary immunity from typhoid fever which Worthing has enjoyed ever since the time of these epidemics, the morbidity being about 0·3 per 1000, and the mortality about 0·05 per 1000.

In considering the figures contained in Table II. it must be remembered that the ratio of the number of cases to the population in each town varies considerably. At Lincoln the 1021 cases represented 2 per cent. of the population; at Worthing there were 958 cases in the second outbreak, 1261 in the first and second outbreak combined, representing 6·26 per cent. and 8·23 per cent. respectively; and at Maidstone 1786 cases, representing 5·28 per cent. There are, however, remarkable similarities in these weekly notification rates which would not be disturbed by this ratio of attacks of population. In the first week, by coincidence, the numbers of notifications in the three towns are nearly the same. The climax is reached by a rapid rise in the second week, followed by a fall in the third, and subsequently by a more or less regular fall week after week. The similarity becomes more conspicuous on grouping the notification figures into periods of three weeks, as seen in Table II.

COMPARISON OF THE THREE EPIDEMICS.

TABLE II.—*Showing the Number of Cases Notified at the End of Each Week after the Beginning of the General Invasion.*

	Lincoln. Jan. 22nd to June 21st, 1905. Pop. 51,000.		Worthing.* Second outbreak, July to Dec., 1893. Pop. 15,317.		Maidstone. Sept., 1897, to Jan., 1898. Pop. 33,830.	
1st week	125		139		128	
2nd ,,	268	547	244	567	544	1201
3rd ,,	154		174		529	
4th ,,	106		92		246	
5th ,,	59	200	59	214	116	423
6th ,,	35		63		61	
7th ,,	55		57		44	
8th ,,	38	125	29	100	34	100
9th ,,	32		14		22	
10th ,,	39		13		20	
11th ,,	27	87	14	48	15	46
12th ,,	21		19		11	
13th ,,	17		12		7	
14th ,,	6	28	5	20	4	11
15th ,,	5		3		0	
16th ,,	2		3		3	
17th ,,	2	6	6	11	0	3
18th ,,	2		2		0	
19th ,,	0		4			
20th ,,	2	3	2	6	—	
21st ,,	1		0			
			In December	4		
Total	996		Total	958	Total	1784
Previous invasion—						
Dec. 1st to Jan. 21st	25		First outbreak, May 3rd to July 1st	303	Sept. 4th to 11th	2
Total	1021		Total	1261	Total	1786

* That is, Worthing alone. There were 303 cases notified in the first outbreak from May 3rd to July 1st.

PREMONITORY INDICATIONS PRECEDING THE OUTBREAKS.

Previously to the outbreaks the three towns had for prolonged periods enjoyed an exceptionally high degree of health, with a low death-rate from all causes and an exceptional degree of immunity from typhoid fever. In all three towns there were cases of diarrhœa or typhoid fever preceding the outbreaks. These cases may be regarded as premonitory of the coming epidemic. At Lincoln the nine cases notified in the last week of December, 1904, plainly indicated that an abnormal amount of typhoid infection had developed in the city. There was no notable prevalence of diarrhœa. At Worthing Dr. Kelly records, "there was a marked prevalence of diarrhœa, which attacked persons of all ages and classes," during the two weeks immediately preceding the first 40 notifications. At Maidstone Mr. Adams discovered, by means of circulars issued at the end of the epidemic, that there had been an extraordinary prevalence of diarrhœa of a peculiar and severe character in Maidstone in the two months (July and August) preceding the onset of the epidemic. At least 164 such cases occurred in Maidstone, about 75 per cent. being in the "Farleigh area," the area in which more than 80 per cent. of the cases of typhoid fever were subsequently notified during the epidemic. About 66 per cent. of these cases of diarrhœa were adults. At the County Asylum also in the year 1897, 128 cases of diarrhœa were recorded (seven in July, 29 in August), together with 17 cases of colitis (one in July, five in August), causing ten deaths. During the epidemic there were 107 cases of typhoid fever at the asylum.

This prevalence of a premonitory diarrhœa preceding an epidemic of typhoid fever is not uncommon in civil life as well as in military expeditions and campaigns. I am not aware of any statistics in this country with regard to this relation between preliminary outbreaks of diarrhœa and subsequent epidemics of typhoid fever. But in the United States this question was studied with most elaborate care by the commissioners appointed to inquire into the causes of the great epidemics of typhoid fever which prevailed in their volunteer encampments during the Spanish-American war of 1898. They found, as the result of an investigation of all the attacks of diarrhœa and typhoid fever which occurred in 48 regiments, with a mean strength of 55,829, that of 46,348 soldiers who had no preceding diarrhœa 7097, or 15·3 per cent., developed typhoid fever; whereas, out of 9481 men who had previous diarrhœa attacks only 648, or 6·8 per cent., contracted typhoid fever. From these figures it may be seen, first, what a large proportion of these troops (17 per cent.) suffered from diarrhœa, and secondly, that the diarrhœa, so far from predisposing to typhoid fever, apparently protected a large proportion of individuals; from which it may be inferred that a very considerable number of these cases diagnosed simply as diarrhœa (probably nearly 1000) were in reality cases of typhoid fever.

The above facts plainly indicate that these cases of diarrhœa preceding typhoid fever epidemics in civil as well as in military life are probably to a considerable extent cases of mild or abortive typhoid fever. It is possible in some instances that they are the original source of the epidemic which follows. Such, for instance, may have been the case at Maidstone. This question requires much more investigation before any final conclusion can be formed, but so far the probabilities are sufficiently strong to indicate that every case of typhoid fever and all cases of abnormal diarrhœa occurring in a community should be regarded and treated as the possible indication of a general invasion until the contrary is proved. Every member of a household in which such cases occur should be investigated clinically and with the aid of the most advanced bacteriological methods available. By carrying out precautions to this extent the medical officer of health would run the risk of being stigmatised as an alarmist causing unnecessary annoyance and expense. To counteract such risk the public must be educated to regard such precautions as a matter of routine and absolutely necessary if they are to be insured against disastrous explosions; the medical officer of health should have the right of claiming expert and authoritative assistance from the Local Government Board entirely free of cost in case of a threatened invasion, and his tenure of office should be so secure that it could not in any way be imperilled by his conscientious endeavours to prevent infectious outbreaks.

Owing to the inevitable delay due to the prolonged period of incubation and the great difficulty of early diagnosis, the invasion by an "explosive outbreak" cannot be signalled through the ordinary process of notification until the greater number of the infections have actually taken place. At Lincoln, it is true, the notification of nine cases in the last week of December gave warning of an impending invasion. At Maidstone, however, there appears to have been no sign of any threatened outbreak save in the excessive prevalence of diarrhœa "of a peculiar kind" during the two months preceding the first notifications of typhoid fever. Similarly at Worthing there was no indication of a general infection having begun save in the excessive prevalence of diarrhœa in the three weeks preceding the notifications.

THE WATER-SUPPLIES.

The water-supplies of the three towns represent three types of supply in which there must be constant liability to pollution with human excreta and not infrequent liability to infection with the germs of typhoid fever.

At Lincoln this liability to contamination and infection was obvious. If it was impossible to abolish this pollution the only safeguard lay in a sufficient and perfect system of sand filtration, conducted with unceasing care, controlled and tested by regular and frequent bacteriological analysis. In the circumstances which obtained it could never be regarded as a safe supply.

At Maidstone the sources of the Farleigh supply (which is supposed to have given rise to the epidemic) consisted for the most part of a large number of springs, several of which were liable to contamination with human excreta. Frequent chemical and bacteriological analyses of the various sources might have prevented a large outbreak of typhoid fever, though they could not reveal contaminations which might occur in the intervals between the analyses. In the absence of frequent analyses the supply would always be liable to be infected with typhoid germs and to give rise to an epidemic of typhoid fever. The most important safeguard in such cases lies in regular and systematic patrol and inspection of the springs, combined with frequent analyses. But at Maidstone, as at many other places, the medical officer of health had no right of access to several of the springs (including the Farleigh springs), owing to their being outside his district, and his authority had, from "motives of economy," cut down the analyses from once a week to once a quarter.

At Worthing the water was derived from deep wells and headings in the chalk, which were found to communicate through fissures with the superficial soil. At no great distance from these sources of the water were ill-constructed drains and sewers, liable to leakage and to be filled with sewage backing up from the tide-locked outfalls. Water derived from such a source was evidently liable to contamination with human excrement and with excreta containing the germs of typhoid fever.

From consideration of the conditions of these and other similar water-supplies, and of the fact that a widespread invasion of typhoid may be conveyed through the water before either analysis or notification can give any warning of the invasion, one can only come to the following conclusions:—

1. An accurate and full knowledge of the source, tributaries, course, storage, and distribution of all water-supplies, and also of all sand filters or other contrivances for purification should be obtained.

2. A full and detailed description of the above should be printed and published, together with adequate maps, plans, &c., and made accessible to each water-rate payer.

3. Where it is possible the sources of supply should be safeguarded by regular and systematic patrol and inspection and by regular and frequent bacteriological analysis. The medical officer of health should have free access to the sources of supply for inspection and the taking of samples.

4. Where sand filtration is used the filter should be constructed and the filtration carried on in accordance with the conditions approved by our best authorities on this subject.

5. Although it may be impossible to prevent some accidental contaminations of the supply, the managers of the waterworks should be held responsible for any contaminations which may be caused through obvious carelessness or neglect.

6. In cases where water authorities refuse to listen to the repeated warnings of the medical officer of health with regard to the dangerous character of a water-supply, the Local Government Board should take action to cause those authorities to take the best practicable means for removing the dangers to which attention has been called.

THE SECONDARY INVASIONS.

At Lincoln, owing to the excellent system of notification which was adopted there, it was made evident that the primary water-borne infections had almost come to an end in the last week of January—i.e., at the time when the great outburst of notifications was beginning and it was realised that a widespead epidemic had burst upon the city; at the time also when the secondary infections were beginning. I have not been able to find in the Maidstone and Worthing reports any evidence to show when the primary invasions ended and the secondary began, but the striking similarity of the curves of notification of all four epidemics (*vide* Table II.) strongly indicates that the causative agents of these explosive epidemics work in similar ways and within similar periods of time—i.e., that the notifications of the primary invasions continue for about the first three weeks of outburst.

We are as much in ignorance with regard to the relation of primary and secondary invasions, the part played by personal infection and infection from drains, and by the incubating and ambulant cases, as we are with regard to the conditions under which the infection from the water-supply takes place. For the elucidation of these obscure and complex problems in connexion with explosive epidemics deliberate, exact, and exhaustive investigations are needed. The medical officer of health and his ordinary staff cannot possibly carry out such elaborate investigations at the time when most required in an extensive outbreak. For at that time both he and his assistants are more than fully occupied with the administrative demands of every hour. For these investigations, which are of such great importance from the epidemiological point of view, an additional staff of assistants is required to carry them out under the guidance and control of the local medical officer of health. Such additional staff should consist of an assistant medical officer of health, a bacteriologist and chemist, and several sanitary inspectors. It is obvious that if these assistants are to carry out the work with the necessary despatch, exactness, and thoroughness they should have been specially trained beforehand for such an undertaking.

Why should not the Local Government Board organise such a reserve staff under the control of one of their experienced epidemiologists? The study of typhoid infection can best be made in rural districts "where the population is thin and where the lines of intercourse are few and easily traced." Robert Koch[2] recognised this when in 1901–02 he instituted his campaign against typhoid fever in the villages of Western Germany. I venture to suggest that England

[2] Robert Koch, Die Bekämpfung des Typhus, 1903; Brit. Med. Jour., Jan. 17th, 1903, p. 158; Annales de l'Institut Pasteur, Sept. 25th, 1905. Vide also article by Lieutenant-Colonel A. M. Davies, R.A.M.C., in the Journal of the Royal Army Medical Corps, May, 1905.

should follow the example of Germany in this respect and that an expert staff such as that mentioned above should be commissioned for some years to investigate and to stamp out the endemic typhoid fever in various parts of the kingdom where it prevails, under the control and guidance of an experienced epidemiologist. From such a staff the assistants should be prepared at short notice to visit any locality invaded by an epidemic if called upon in order to make the much-needed investigations and, if required, to further assist the local medical officer of health.

PERSONAL INFECTION.

In the above account of the Lincoln outbreak attention was called to the subject of personal infection as a cause of a number of the cases of secondary infection. Without doubt personal infection with typhoid fever is far more common than is generally supposed—not only by the public but also by the medical profession. It is difficult to understand how it was that Murchison and his contemporaries found such strong and extensive evidence against the frequency of personal infection. I can only suggest that there must have been a change of type of the disease, for since those days evidence has been constantly accumulating, especially from medical officers of health and those engaged in the prevention of disease, that at close range the disease is distinctly infectious, conveyed by contact, or in other ways.

This infectivity does not so often come under the notice of the clinical physician, owing to the fact that in the general hospitals the cases of typhoid fever are scattered and comparatively few. But the infectivity becomes much more obvious when the cases occurring in a large number of general hospitals are considered. In 1893-95 Dr. F. W. Andrewes made some investigations of the number of cases of typhoid fever amongst the nurses in six of our largest London hospitals during a period of three years. The results of the inquiry showed that the disease was at least 20 times as common amongst those nurses as amongst women of the same age but of different occupation living in London at that time. In 1900 Dr. E. W. Goodall read a paper before the Epidemiological Society, in which he epitomised the experience of himself and his colleagues at the 12 hospitals of the Metropolitan Asylums Board during the eight preceding years. During this period 5913 cases of typhoid fever were admitted into the hospitals and 100 cases of typhoid fever occurred amongst members of the hospital staff, chiefly nurses; that is to say, for every 1000 cases admitted 16 on the staff contracted the disease. In one of the hospitals, where "every possible precaution was taken for the protection of the nurses," the rule of the attack amongst the nurses was 25 for every 1000 cases admitted. There can be little doubt that nearly all these cases amongst the nurses were due to direct infection from the typhoid patients. If so, many cases of direct and indirect infection take place in hospitals where, it must be supposed, all possible precautions are taken. One must expect that a considerably larger number will be attacked amongst those nursing the patients or dealing with infected bedding, clothing, &c., during an epidemic. An accurate estimate of the proportion of such cases occurring in an epidemic could only be made by a special staff of observers.

GENERAL CONCLUSIONS.

A community may use a water-supply which is grossly and constantly polluted with human and animal excreta with impunity for a long course of years, until by some combination of circumstances, concerning which little is known at present, specific germs are introduced into the water under conditions favourable for the infection of those who use the water. Typhoid germs introduced in this manner for a short period will give rise to an explosive outburst of typhoid fever. The most prompt system of notification cannot, as a rule, detect the presence of an "explosive" invasion of typhoid fever until two or three weeks after the widespread infection has taken place.

Chemical and bacteriological analysis can show the dangerous character of a water-supply. They may give warning of pollution with animal excreta. But, up to the present time, they have not given definite forewarning of contamination of the water with the germs of typhoid fever. A water-supply pronounced to be pure from the results of analysis may become contaminated with typhoid germs and give rise to an extensive epidemic at any time between the date of that analysis and the analysis which is to follow. In order to secure the greatest practicable safety of a water-supply a complete and accurate knowledge of the conditions of the water from source to distribution and a constant inspection and patrol of all parts of the water-supply, combined with frequent analyses, are essential. In most cases of water-borne epidemics the actual infection from the water has taken place for the most part before notification or analysis have given warning of the actual presence of an extensive invasion.

The occurrence of an unusual number of cases of typhoid fever or diarrhœa appear to be the only premonitory signs of the onset of a widespread infection. In order to insure detection and prevention such cases should be regarded and dealt with as the forerunners of an invasion of typhoid fever until the contrary is proved. The public should be educated to regard such precautions, not as a cause for alarm, but as routine methods necessary for prevention. On the occurrence of an explosive outbreak of typhoid fever of wide extent the number of assistants on the staff of the medical officer of health is not sufficient to enable him to carry out the numerous and difficult inquiries needed for the full scientific investigation of the phenomena of a typhoid fever epidemic. An additional number of trained assistants should be called in order to undertake these investigations. These assistants might be drawn from a reserve staff of experts, trained under an experienced epidemiologist and commissioned for some years to investigate and stamp out the endemic typhoid fever which prevails in various parts of the kingdom, especially in rural districts.

I am conscious that there are many defects and weak points in the evidence which I have brought before you with regard to these three epidemics. But I trust that I have shown sufficient cause for demanding other and more complete methods than those which at present exist for the protection of water-supplies, for detecting and counteracting invasion at the earliest possible opportunity, and for the collection of exact information with regard to the etiology of typhoid fever epidemics, and that in extensive outbreaks such exact information can only be acquired with the help of trained assistants who will devote themselves entirely to these inquiries from the earliest date possible to the very end of the epidemic.

THE DESCENDANTS OF THE TUBERCULOUS AND HEREDITARY PREDISPOSITION.

BY GEORGE OGILVIE, B.SC., M.B. EDIN., M.R.C.P. LOND.,

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PERHAPS no creed is more deeply rooted in popular belief than that of the hereditary transmission of tuberculosis. Everyone knows families in which the disease has claimed numerous victims through several generations. Only a few decades ago this creed reigned supreme, not only among the lay public but throughout the medical profession. Tuberculosis was considered an anomaly of constitution. As it is generally known that anomalies of constitution are transmitted, so it seemed almost self-evident that the tuberculous constitution should also pass by heredity from generation to generation. The strange selection which the disease makes among the members of a family, attacking some branches while sparing others, and occasionally leaping over a whole generation, found its explanation in the theory of constitutional inheritance. The well-known experiments of Villemin and Koch's discovery have afforded irrefutable proof that tuberculosis is an infectious disease caused by an organism entering the body from without. From the date of this discovery the old doctrine of the heredity of the disease began to totter. Instead of the vague term "anomaly of constitution" one has now to deal with a definite, easily recognisable entity—the tubercle bacillus.

On a previous occasion[1] I gave my reasons against the view of the hereditary transmission of the tubercle bacillus as the cause of tuberculosis appearing in subsequent generations of the same family—a fact familiar to every one.

[1] Germ Infection in Tuberculosis, Brit. Med. Jour., Sept. 13th, 1902.

Germinal transmission of a micro-organism, whether spermatic or ovular, is altogether unknown in human pathology. With all due deference to Pasteur's great authority I am inclined to think that his results with regard to the hereditary transmission of *pébrine* are in need of careful revision. But even if corroborated by further investigation these researches would have no bearing on the pathology of the human germ cell, which is totally different in structure from that of the silkworm. Placental transmission, although undoubtedly occurring in most infectious diseases, is far too rare in tuberculosis to explain the clinical fact of the frequent existence of the disease in both parent and offspring. The almost general opinion of the medical profession of all countries at the present day is, I think, expressed in the words of M. Bouchard: "Que les parents ne transmettent pas à leurs enfants la tuberculose en nature, mais en expectative, en possibilité, c'est l'hérédité de terrain."

It is on this "territorial" heredity that I desire to make a few remarks. The hereditary disposition to tuberculosis is still denied by some thoroughgoing contagionists. Such an eminent pathologist as Cohnheim considered that the use of the word "disposition" or "predisposition" is unscientific and "rather deters from than invites to further investigation." Certainly if the word is to receive a tangible, definite, and truly scientific meaning the diversities of disposition must be reduced to diversities of morphological or chemical nature. Since Cohnheim's days much has been done in this direction. The experimental work of Landouzy, Charrin, and others stands out pre-eminently. Of course, the question of a specific disposition to tuberculosis in the human species could only finally be decided in a strictly scientific manner by inoculating a large number of human beings in the same way, with the same quantity, and the same culture of the bacillus. Such an experiment is, however, not likely to be performed. Meanwhile, we have certain clinical facts which, as far as clinical evidence goes, seem to prove conclusively a hereditary disposition. It is well known to all pathologists, and particularly in those cases of tuberculosis which die about the time of puberty, that the heart is usually found to be small and the aorta narrow. Whether, and how far, this anatomical peculiarity may be considered as predisposing to the development of tuberculosis, and whether it is of a hereditary character, as has been alleged, I will not attempt to decide. On the last point the post-mortem evidence in dealing with two subsequent generations is up to the present too scanty. But another fact seems to prove beyond doubt that at least a *local* hereditary disposition exists—viz., that tuberculosis in the offspring almost invariably starts in the same lung which was first attacked in the parent. Similar observations have been made by others. I have not been able to prepare an exact table of my cases, but their number is between 25 and 30, and the result is almost constant, where the history of the development of the disease in both generations was capable of being ascertained with sufficient accuracy. I only mention one case as an example. Here the father and three children became affected, all at the age of about 25 years, the disease in every case beginning in the right lung. Such facts certainly prove the hereditary transmission of a *locus minoris resistentiæ*.

With regard to a general hereditary predisposition it has been said that a difference must be made between a specific disposition and a general constitutional weakness, and also between a truly hereditary disposition existing in both parent and offspring, and a congenital disposition not existing in the parent but produced in the infant by the parent's disease—*un phénomène para-tuberculeux*. These distinctions, which are certainly of much scientific interest, are hardly of great practical bearing. That certain constitutional habits, inherited from the parents, play an important part in the causation of pulmonary tuberculosis seems to constitute a clinical fact beyond all possible doubt. The following is an almost classical example in illustration of this fact. It is the case of a family consisting of a father, a mother, and of two sons and three daughters. The father has a well-built chest and is healthy. The mother is always ailing and suffers from chronic lung disease. She comes of a family in which cases of consumption have been frequent. The three daughters take after the build of the healthy father. They are healthy women. Both sons take after the mother. They are tall and slender and have small flat chests, and have in addition the mother's reddish complexion, which M. Landouzy has described as "*terrain vénitien*." From their earliest youth they were away from home at public schools and only at home during the holiday terms. The eldest son died from consumption at the age of 24 years; the other, now 20 years of age, is in a health resort on account of lung disease. The daughters remain healthy, although constantly exposed to a greater infection through daily association with the mother.

Cases of this kind have no doubt occurred in the experience of every practitioner. Whether in this case the disposition inherited is specific or not is a difficult question. It is certain, however, that the sons inherited from their mother a constitutional habit which made them specially liable to infection by the tubercle bacillus, but there is no evidence that this particular inheritance renders them more liable to infection by other parasites. The French Hospital in London has lately opened a sanatorium for consumptives at Brighton which I have no doubt will afford relief and cure to many sufferers. At the same time it will give ample opportunity of studying further the important and difficult subject which I have ventured briefly to discuss. The results obtained by further observation I hope to publish at a future date.

Welbeck-street, W.

THE DIAGNOSIS OF OCULAR PARALYSIS.

BY ARCHIBALD S. PERCIVAL, M.B., B.C. CANTAB.,
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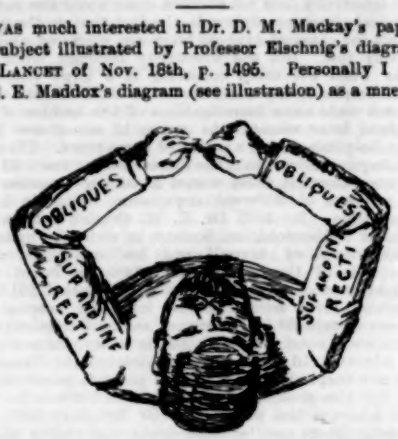
I WAS much interested in Dr. D. M. Mackay's paper on this subject illustrated by Professor Elschnig's diagram in THE LANCET of Nov. 18th, p. 1495. Personally I prefer Mr. E. E. Maddox's diagram (see illustration) as a mnemonic



for the actions of the ocular muscles. It is easily seen from this figure that a superior or inferior rectus elevates or depresses the eye most when the eye is directed (27°) outwards, and an inferior or superior oblique elevates or depresses the eye most when the eye is turned (51°) inwards. The 12 muscles of the eyes may be divided into three groups of four each, four moving the eyes laterally, four upwards, and four downwards.

A. Lateral.	Aa, Right-turners...	Right external rectus and left internal rectus.
	Ab, Left-turners ...	Left external rectus and right internal rectus.
B. Elevators.	Ba, to right	Right superior rectus and left inferior oblique.
	Bb, to left	Left superior rectus and right inferior oblique.
C. Depressors.	Ca, to right	Right inferior rectus and left superior oblique.
	Cb, to left	Left inferior rectus and right superior oblique.

It will be seen, as Mr. Maddox says, that the six pairs in the right hand column are Graefe's "true associates." "The true associates can always be borne in mind by remembering that their names are the most contrary possible—e.g., the left inferior oblique is in every term opposite to right superior rectus." Now consider the patient's field of vision: upwards to the right, or right superior area; to the right, or right external area; downwards to the right, or right inferior area; and name similarly the three fields to the left. Then in looking towards any superior or inferior area the muscles employed are the same-named rectus and the

cross-named oblique. Thus in looking downwards and to the left—i.e., to the left inferior area—the patient uses his left inferior rectus and his right superior oblique.

We are now in a position to consider the diplopia which will arise from an ocular paralysis. The chief symptoms of under-action of an ocular muscle are: 1. Limitation of movement of the affected eye in some one direction. As they move together in that direction one of the two lags more and more behind the other, producing a continually increasing deviation. This gives rise to (2) diplopia, which is most marked of course in that position of the eyes towards which the affected muscle, when normal, moves the eye. *The false image is always in the direction of the action of the paralysed muscle.* 3. Altered position of the head. In order to avoid diplopia as far as possible the face assumes a position similar to that which the eye would take were the paralysed muscle to act upon it. In fact, the face looks in the direction of greatest diplopia. Thus the face looks towards the right with a right external or a left internal paralysis.

It is now an easy matter to determine the particular muscle affected in a given case by noting the diplopia which occurs on moving a candle to the right, to the left, upwards and downwards in front of the patient. If the diplopia is increased—i.e., if the separation of the image is increased—in more than one of these directions an affection of more than one muscle is indicated. It is important to avoid forming one's diagnosis upon the observed inclination of the false image, for a previous heterophoria may render one's conclusions erroneous. The procedure which I adopt is really an epitome of the methods described by Mr. Maddox in his book on the Ocular Muscles and is indicated below. I have found it simple, free from pitfalls, and logical. Just as "a botanist with a flower inquires successively into its natural order, its genus and its species," so the ophthalmologist reaches his diagnosis by stages, determining first whether the muscle at fault belongs to the order A, B, or C, then the genus *a* or *b*, by noting if the separation of the images is increased by moving the candle to the right or to the left. By placing a red glass before the right eye we can at once determine which eye, and therefore which muscle, is at fault. All that one has to do in a case of vertical diplopia is to determine in which area of the patient's field of view the greatest vertical separation occurs and "the paralysed muscle is either the *same-named rectus* or the *cross-named oblique*." Thus if the greatest vertical separation occurs in the right inferior area the paralysed muscle must be either the right inferior rectus or the left superior oblique. This is Mr. Maddox's mnemonic and I have found that it is readily grasped by students and is never forgotten. The use of a red glass before the right eye distinguishes the two quite simply by means of the appended table.

Table of Diplopiæ.

A. Lateral	increases to right	Aa	Red image to right, right external rectus.
			Red image to left, left internal rectus.
	increases to left	Ab	Red image to right, left externa rectus.
			Red image to left, right internal rectus.
B. Increases up	and to right	Ba	Red image higher, right superior rectus.
			Red image lower, left inferior oblique.
	and to left	Bb	Red image higher, right inferior oblique.
			Red image lower, left superior rectus.
C Increases down	and to right	Ca	Red image higher, left superior oblique.
			Red image lower, right inferior rectus.
	and to left	Cb	Red image higher, left inferior rectus.
			Red image lower, right superior oblique.

Newcastle-on-Tyne.

THE QUEEN'S JUBILEE HOSPITAL.—We have received information from the matron of the Queen's Jubilee Hospital that she, a sister, and the staff-nurse have resigned their situations at the institution.

SMALL-POX HOSPITAL AT DEVONPORT.—A small-pox hospital has been erected by the isolation hospital sub-committee of the Devonport town council, at a cost of about £500. The building is of wood and iron and will accommodate 12 patients—six males and six females.

A NOTE ON THE CONDITION OF PATIENTS AFTER THE REMOVAL OF THE VERMIFORM APPENDIX.

BY LAWRENCE JONES, M.S. LOND., F.R.C.S. ENG.,
SURGICAL REGISTRAR TO ST. GEORGE'S HOSPITAL.

IN the early part of this year I took the trouble to write to all those patients upon whom operations had been performed for appendicitis at St. George's Hospital in the years 1900, 1901, and 1902, with a view to ascertain how many of them were entirely satisfied with their condition and how many suffered from ailments, trivial or severe, which they referred to the region of the operation. It was impossible to see all the patients personally and the majority of them only communicated with me by letter, but, notwithstanding this, their answers are, for the most part, sufficiently full and of interest. Information was especially asked for on the following points: (1) the existence of pain, constipation, flatulence, &c., as being possibly caused by adhesions; (2) tenderness of the scar; and (3) ventral hernia. The number of letters despatched was 184 and from these resulted 87 replies. These 87 may be separated according to the condition of the patient at the time of operation into three groups: (1) those in whom the peritoneum had become infected, with a resulting abscess or generalised peritonitis; (2) those with a definite acute attack at the time of operation but with no suppuration outside the appendix; and (3) those upon whom operation was performed in a quiescent period or during a subacute attack. To deal with these groups separately.

1. In some of the cases in which there was definite suppuration around the appendix the viscus was removed during the patients' stay in the hospital, while in others the abscess cavity was merely drained, the appendix being left untouched. Considering these two classes apart, the first included 22 patients, and of these 12 could mention no defect in their present health, three suffered with slight occasional local pain, three had noticed some bulging of the scar, one was more constipated than formerly, and one was more flatulent. Two ascribed definite lesions to the operation: the first had become ruptured in both groins, an effect, he considered, of his abdominal scar; the second, whose scar had "reopened" after leaving the hospital, wrote pages describing various vague complaints and has probably developed a ventral hernia. Of these two the former has no proper ground of complaint.

Among the patients whose appendices had not been removed two developed an acute attack later and underwent removal of the offending organ and are now quite well. Nine are in perfect health, although the appendix is still, presumably, in the right iliac fossa; six could mention the usual milder troubles which, however, failed to inconvenience them seriously, and included pricking pain with bulging of the scar, femoral thrombosis which has since cleared up, slight bulging of the scar, abscess of the scar, and, in two cases, pain on exertion.

2. The patients, upon whom operations had been performed during an acute attack but before obvious peritoneal infection had occurred, numbered 16, and in no case did any of these instance trouble sufficiently severe to incapacitate them in any way. 12 were in perfect health; in one case the scar was slightly tender on pressure, in two others there was slight pain with some fulness in the scar, and in the fourth there was a definite hernia at the site of operation as large as a hen's egg.

3. Those patients operated upon during a subacute attack or in a quiescent period were 32 in number and furnished the following replies. 20 expressed themselves as being better in every way and much benefited by the operation, nine could find some symptoms which they thought possibly due to the scar—for example, four had noticed slight occasional pain on exertion or on coughing, one suffered from constipation, one from "flatulent dyspepsia," another from tenderness in the scar, and three thought that the scar showed more prominently than before.

Three patients wrote letters which seemed to show signs of their dissatisfaction with their present lot; the first, a woman whose appendix had been removed for recurrent attacks of appendicular colic and whose wound had suppurated, has since developed a large ventral hernia and has

been treated for anæmia, gastric ulcer, parametritis, and various other disorders. The other two complained of acute pain at times in the region of the operation, sufficiently severe to be a burden to them but not enough ever to prevent their ordinary occupations. Both of these were operated on after several attacks, and in one case the appendix was found firmly bound down by many adhesions and with its lumen obliterated by old inflammation, so that their trouble is probably due to the formation of adhesions prior to the operation.

Taking these three classes together, it will be seen that out of 87 patients 54 have been in a perfectly normal state of health since their discharge from the hospital; 27 wrote to say that although their health has been good, yet symptoms have arisen from time to time which have attracted their attention to the wound; and six wrote as though they had definite grounds for the complaint of ill-health since the operation. Of these six, three have unquestionable ventral hernia, two suffer from severe occasional pain, and one charges the operation with an effect which it probably could not have produced.

Dealing with the symptoms which have been mentioned in order: bulging of the scar or ventral hernia appears on 13 occasions; in three only is it stated to be a definite hernia, in the other ten the condition is briefly alluded to as "fulness or prominence" of the scar. In one of these ten it seems so marked that the number of definite hernia may be increased to four; while of the other nine the condition may be assumed to be merely either a weakness of the scar without any definite hernia or else the natural prominence of an abdominal scar. Local pain was found to occur in 17 patients. Out of these, 13 alluded to it as being "a pricking pain, occasionally, on exertion," or words to that effect; and of the other four it was only severe in two. Tenderness of the scar, constipation, flatulence, and the formation of an abscess in the scar after the patient's discharge were noted each on two occasions, and in one, thrombosis, which had delayed the man's convalescence in the hospital, had recurred since.

The total cases may again be divided into 44 in which drainage was employed and 43 in which the wounds were closed. Of the former group 25 are quite well and 19 have some troubles, mild or severe; of the latter 29 are well and 14 have now, or have had, some symptoms. The difference between the two does not seemed marked; but out of the cases which complained of bulging, weakness, or definite hernia of the scar nine belong to the former and four to the latter group, and of these four it was apparently only a genuine hernia in two, in both of which the wound had suppurated. It is therefore apparent that the risk of hernia, provided the wound runs an aseptic course and provided that it can be completely closed, is slight, in spite of the fact that in many of the above cases the deeper structures were only brought together by one layer of sutures.

The number of patients is too small to allow one to form any definite opinion of the conditions with which one may expect to meet after the operation for appendicitis, and at first sight the proportion of patients who can adduce symptoms which did not exist before its performance seems unexpectedly large, but the tone of the letters, with one or two exceptions, betrays a gratitude which shows how little the writers are inconvenienced. It also appears that the subjects of definite suppuration in whom the appendix was not removed are in no worse a condition than those deprived of that organ in the first instance, but it must be remembered that of the former 17 two ran a definite risk to life by subsequently incurring another attack. Small though the number of cases be, it shows that after-results are far less common among patients in whom the appendix is removed early in the first acute attack than when the case is allowed to go on to suppuration or to the formation of adhesions consequent upon recurrence of the disease.

I am much indebted to the staff of St. George's Hospital for permission to make use of their cases.

Grosvenor-street, W.

PILKINGTON CANCER RESEARCH ENDOWMENT.—We have been asked to remind our readers that applications for appointment under this endowment will be received up to Wednesday, Dec. 13th, by Professor G. A. Wright, Victoria University, Manchester, from whom all particulars can be obtained if any further than those stated in our recent annotation are required.

DE SENECTUTE.

BY SIR SAMUEL WILKS, BART., M.D. LOND., F.R.S.

THE subject of old age having lately been much before the public owing to some very startling doctrines said to have been enunciated by Dr. W. Osler, the new Regius professor of medicine at Oxford, I have naturally had my attention turned in that direction and now with your permission will lay my thoughts before your readers. I shall refer both to the physical and mental changes which occur as age advances—that is, to those changes felt consciously and personally and then to those which are observed by others. I have noticed in the correspondence which the interest of the subject has called forth that reference has, for the most part, been made to the mental side and therefore mainly to the ages at which authors have first given their principal works to the world.

The heading of my paper will naturally remind my readers of the well-known essay of Cicero. This I have always considered to be not very satisfactory, for although powerful and truthful, it is drawn from his observations of others rather than from an introspection of himself. The great orator, it must be remembered, wrote under the pseudonym of Cato who was supposed to be 84 years of age, whilst Cicero himself was only about 60 years—that is to say, 20 years younger. He therefore could not possess the personal experience of a very old man. I cannot for this reason quite put myself in Cicero's place when personally I reckon my years only a little less than those of the imaginary sage. As regards the subjective and objective methods of inquiry on the question of age, the former is often of little value compared with the latter and, indeed, is sometimes as different from it as are the opposite sides of the shield.

I remember once talking to Sir James Paget on this subject and his conclusions were that no one was ever conscious of old age, or rather he had no consciousness or feeling which was always reminding him of the period of life which he had reached. Even very precocious children never realise the fact that they are in the position of their seniors. So Sir James Paget maintained that we had no conscious knowledge of advancing age but discovered it in the same way as our friends and others do, by contemplation and observation, by thinking of our past career, remembering the dates of certain events, counting our wrinkles in the looking-glass, or gazing at our shrivelled hands. So little, indeed, do many persons remember their age that they have to think and reckon up their years before they can give the correct answer. I might illustrate this subject by mentioning my own case. Knowing how little we realise our advancing years I was continually counting mine and contemplating what the result would be on the future actions of my life. I think mine is a very exceptional case but it occurred from having observed how many persons whom I had known had been the victims of self-deception or senile vanity, and I thought I would be on my guard. I therefore acted in several cases in accordance with my years instead of asking myself what capabilities of work I still had within me. I have no doubt I erred on the side I took, although the error, I think, was a very exceptional one. Having retired from my hospital according to rule at 60 years of age and at the same time giving up some of my practice I began to regard myself as having arrived at my climax and that I had already begun my descent. I took this view as the most reasonable, wishing to guard myself against the inroads of self-deception. So regarding myself from this outside point of view I continually spoke of my inability to hold any more public positions and declared that I was *passé*. When, however, I was put into harness and kept it on for three years I was informed that I had performed the duties of my important position very well. Of this I was scarcely conscious, so that if the verdict had been a contrary one I should have equally accepted it. I confess that in endeavouring to avoid the rocks I had fallen into the whirlpool and had not sufficiently relied on the powers which I had still retained. I mention this personal narrative because I think it has a bearing upon the question which I am discussing.

In spite of this admission I am much in accord with Professor Osler's statement if taken in its true signification. When he spoke of the failing powers of age he did so in such

a forcible manner that he stirred up in us afresh the memory of the wise man's saying, "γηρὰς σεσηρὸς." I understood his dictum to be that all the activities of our nature which characterise every man's life cease at a comparatively early age, meaning middle age, and therefore regarding these alone we might be blotted out. He did not deny the truth of Cicero's saying, that authority and judgment might belong to the old, nor the accuracy of his simile, that the pilot of a ship was well employed although he did not climb the mast or run up and down the deck but sat at the stern holding the rudder. I think the comments of the press, in their endeavour to prove the falseness of Professor Osler's opinion, were not of much value as they exhibited a list of well-known authors who between 50 and 60 years of age first published their several works. It was evident that in the majority of cases the work then for the first time given to the world was the result of many years' previous labour. In the case of one who wrote a learned book on philosophy at 80 years of age the treatise consisted materially of the subjects of his lectures delivered many years before to his pupils. In many other cases, although the work was published at a late period of life, it was really known to have been done at a much earlier and more active time.

Now let us look to the influence of age in ordinary life and let us take the three common professions of the church, the law, and medicine. A parson will often be seen at his work in a country living at a very advanced age, he perhaps will perform the whole duty himself, continuing year after year to read the service and then preach as well as over the proper sermon taken from the annual roll. Such routine work probably does not entail much mental labour, perhaps little more than setting the automatic machine going. A judge may sit on the bench to an advanced age, having acumen enough to enable him to sum up the case and then deliver his judgment as well as ever, but I should doubt whether in a novel or difficult law-suit he could propound the law in so learned a manner that it would always remain as a guiding precedent. In like manner I would speak of our profession. I have known a medical man continue to practise until a very advanced age, while both he and his patients maintained that there was no difference in him from what he was in past years. This was probably true: his mode of talking to his patients was equally impressive and agreeable as heretofore, his diagnostic power was the same as before, and his prescriptions knew no change. He was like his brothers in the pulpit and on the bench who all looked as if they might go on for ever. A very striking example of self-deception came before me some years ago in the case of a well-known London physician. He was obliged by limit of age to retire from his hospital but he retained his office at an insurance office as he did not wish to lose his salary. He told me one day that the managers had given him an assistant, and added that he did not require one but he believed that they were taken by all the new fangled methods of the day, for they looked with childish pleasure at the young man's double stethoscope, his ophthalmoscope for examining the eye, and a box of chemicals for all kinds of tests. When shortly afterwards I met this remarkable young man I asked him why the managers had appointed him as assistant. He answered that it was a matter of necessity; the authorities did not like to dismiss an old servant, but the doctor was in his dotage; he was so deaf that he could not distinguish one sound from another and so overlooked disease of the heart and lungs, his eyes were so bad that he was blind to an important rash, and he had also already overlooked more than one case of Bright's disease. I might conclude the old gentleman's history by saying that he still passed muster with his own patients on account of his great experience.

This suggests to me the great importance of every medical man keeping himself *au courant* with all the advances made in medicine and this constitutes one great value of a hospital appointment to every consulting surgeon or physician. In the first place he will find nothing like teaching to give him accurate knowledge and he will also find that he is kept "posted up" in all the new drugs and methods of treatment by the house surgeons and physicians. All the new medicines and all the new tests are constantly brought before his notice by his assistants. I can well remember three of the most eminent consultants of my day who exemplified the truth of this: one of them was quite unaware of the value of subcutaneous injections except for the introduction of opiates and experienced great surprise on seeing convulsions cease after injecting a syringeful of ether. Another physician reading and hearing of reflexes and wishing to add the new method to his means of diagnosis would not condescend to gain a little instruction but set about his performances in his own original and very ludicrous manner. The consulting surgeon to whom I allude met me in consultation in a case of intestinal obstruction. On careful examination he declared that no operation could avail as it was not a case for lumbar colotomy, the only one available in obstruction. A younger surgeon being afterwards called in, a laparotomy was performed with temporary success. I believe that none of these occurrences would have happened if the three eminent men had still held their old hospital appointments. And this leads me to draw from this the corollary—the absurdity of appointing the physician or surgeon who retires from hospital work to the office of consultant with the supposed object of his occasionally joining with the acting staff to offer his superior opinion. As I have just said, he loses considerably when out of the hospital atmosphere and I feel sure that in a year's time he is much less fitted to give an opinion and much less to make a diagnosis than he was when he left the wards. Of course there may be some kind of case to which he has given his special attention in which his experience might be useful.

It might be as well to consider for a moment what we mean by age and the aged. A man's age is counted by the number of revolutions he makes round the sun, and we observe that every animal has its own number of cycles and vegetables also have theirs but with a much wider range. The higher animals have tissues the same as our own, or at least in many cases not distinguishable in their structure. It is therefore very remarkable, and not at all self-evident, why a dog should be worn out and old after his ten revolutions, a horse after twenty, and man when he has had his threescore and ten. According to Flourens an animal's age is five times that of the period taken to reach maturity; the latter is known by the occurrence of the osseous attachment of the epiphyses to the long bones. In the case of the elephant which the Zoological Society sold to Barnum and which was shortly afterwards killed by an accident, the skeleton was again brought to England in a show and it was then seen that the epiphyses were still distinct and separate. This accorded with its supposed age of 22 years when it was sold. According, therefore, to Flourens's law man ought to reach a hundred years of age. There seems nothing opposed to the possibility of the age of man having been greater than now in the time of the patriarchs, seeing that it is never stated that the lengthened years were simply made by adding so many more to the present ordinary duration of life, for it seems clear from the imperfect narratives which are given that all the divisions of life were lengthened in their due proportion, marriage taking place and children being born to men and women when they were above a century old. As then adolescence was proportionate to the whole age, it does not make the story incredible. Subsequently in Jewish history the modern period of old age was gradually approached until it became the same as our own. Moses at the termination of his career was 120 years old, yet his eye was not dim nor his natural force abated. This must evidently have been true, as he had only just completed his stupendous work of making his code of laws. Subsequently it seems that the age of man was no higher than it is at present. We read in the pathetic story of Barzillai when he was invited by David to return with him to Jerusalem after his great assistance in war that his answer was: "How long have I to live, that I should go up with the king unto Jerusalem? I am this day fourscore years old: and can I discern between good and evil? can thy servant taste what I eat or what I drink? can I hear any more the voice of singing men and singing women? ..... Let thy servant, I pray thee, turn back again, that I may die in mine own city, and be buried by the grave of my father and of my mother." It is seen that we in common with all other animals take so many years "to ripe and ripe" and then so many more "to rot and rot," and "thereby hangs a tale."

It is more especially the second part of life which we are here considering, the change towards decay when "the way of life is fallen into the sear, the yellow leaf." This is seen in the distortion of the joints and bones of the hands, in the drooping figure, with the narrowed chest and sloping shoulders, indicating that the ribs are less rounded and the capacity of the chest is diminishing, the lungs at the same time undergoing a corresponding atrophy. Then we may

perceive a want of resiliency or thickening of the blood-vessels and when we consider how a good supply of blood is necessary to the nutrition of the tissues we shall see how degeneration of the organs is intimately associated with decay of the smaller arteries and the reason why the liability to apoplexy or rupture of a vessel in the brain increases with age. This fact of the blood-vessels being so markedly affected in age has suggested that the cause is due to a previous change in the blood itself, it being evident that good nutrition must depend upon a healthy state of the blood. Now of late years there has been some reason to think that this deterioration of the blood occurs in a very definite manner by the loss of some special ingredients which are necessary to the full integrity of the vital fluid. This view is strengthened by the remarkable discoveries of late years showing the importance of several bodies and glands, the function of which was formerly quite unknown, in supplying the blood with particular juices to render it complete. In consequence of the destruction of these organs by disease persons slowly die out from nerve exhaustion, become discoloured in their skin, or their minds enfeebled; all these conditions coming about from disease of the spleen, of the suprarenal bodies, of the thyroid gland, of the pituitary body, and perhaps certain other glands. It has been suggested, therefore, that the imperfect supply to the blood of the products of these organs may constitute the first step towards its deterioration. It may be remembered that Brown-Séquard about 20 years ago proposed to inject certain fluids into the blood in order to restore the departing vitality of age and that by this method old persons of both sexes would renew their youth. His panacea was the spermatic fluid of the rabbit. I have before me a copy of the French *Figaro* in which the great professor is drawn surrounded by a number of rabbits, whilst he stands at a table in his laboratory with pestle and mortar pounding some of the important organs of these creatures into a pulp in order to extract the vitalising essence. In this picture there is also drawn a row of men and women, beginning with the very aged and then passing gradually along the scale to the youth. This metamorphosis from the old to the young has been accomplished by this youth-restoring fluid. Even a new progeny arrives to the once aged couple. This caricature, which tickled the Parisian fancy, was the outcome of a subject just then exciting the medical world; this was the introduction directly into the blood of substances to neutralise or to destroy the morbid materials within it. This idea was seized upon by Zola who, in his "Dr. Pascal," spoke of materials which might be thrown into the blood to destroy the tuberculous microbes of Koch which had then just been discovered, and he then proceeds to develop his method of making old people young—a true rejuvenescence. A fallacy underlying these popular disquisitions is seen in making passion dependent on the integrity of certain organs, whereas it is known to continue to a very advanced age and long after these organs have become functionless.

In speaking of organs and their function, I need scarcely remind any reader that, although we are in the habit of describing the anatomy of an organ and then of the function which results from it, there is a doctrine as old as Aristotle which asserts the contrary; that is, that the function comes first and then the organ. Of the truth of this there are so many examples before us that it is scarcely needed to particularise but I may mention one or two as the subject is one of great practical importance, especially in advancing age. I may remind readers of the large muscles of the blacksmith's arm or the dancer's leg and that they are therefore proportionately strong, but also remind them that this increased development came in consequence of their being put to greater use when they were of normal size. Even a more striking example may be seen in the case of the kidney which has become greatly hypertrophied in consequence of its fellow having become atrophied in early age from disease or accident. We generally speak of the urinary secretion which consists of salts in solution as a result of the operation of the kidney, but in the case I mention these deleterious matters were already in the blood and had to be got rid of and so the kidney grew to the adequate size to effect this object. Even should the kidney be more than an excretory organ, it does not affect the argument. Throughout all nature similar reasoning may be used; the child may be taught that the spreading roots of the oak tree are to support the heavy, wide-extending branches, which would not be required in the Lombardy poplar, as if the tree came first and the roots afterwards as a consequence, whereas we know that both branches and roots grow simultaneously. And we may say the same also in an ideal sense, as when the artist is said to use his chisel on a mass of marble in order to make a human figure; it might also be stated that he sees an Apollo or a Venus in the marble and he extracts them with his chisel.

The practical side to these remarks is that just as we use our muscles if we wish them to retain their strength, so likewise must we continue to use the brain in order to preserve it in working order. Use brings blood to the organ and so its nutrition is kept up and its healthy state is retained. As a result of this it may be said that, as a rule, professional men or judges and legislators, whose minds are continually active, live longer than those who retire from business at an early age and have no occupation to employ their leisure. When Mr. Gladstone was haranguing his constituents every day or several times a day it might be observed how active was his brain in all its parts, for not only were his intellectual faculties at work but his motor centres also as shown by his firmly closed mouth, knitted brow, and by a walk so vigorous that it always seemed wiser to step out of his way. Occupation therefore may be considered as one of the necessities of long life. This has always been maintained by philosophers, who perhaps were not aware of the substantial basis for it, that it was the best method of obtaining a good supply of blood for the working organs. It preserved the *mens sana in corpore sano*. It holds good even in the old man of Cicero who sits still in the ship whilst taking the helm, or as the great orator further says, not only must the body be supplied but the mind and the soul still more, for these also, unless you drop oil upon them as on a lamp, are extinguished by old age. If we are thus employed the old people may say, we need not yet enter the lethal chamber, for our occupation prevents us becoming indolent, drowsy, and foolish. Cicero speaks of his friend Appius, who had a large family of sons and daughters, all of whom respected him, whilst his servants feared him, and although he was a great disciplinarian they all held him dear. The orator adds that he likes an old man in whom there is something of the young and also a young man in whom there is something of the old. It must be remembered that Cicero was endeavouring to combat the idea of the unhappiness of old age because it takes away the capacity of mingling in the affairs of the world, produces infirmity of body so that there are no sensual gratifications remaining and that death is always before us. All these hardships he tried to combat by stating that they were imaginary or, if sensual frivolities had now departed, our pleasures were more refined or elevated feelings had taken their place.

What suggested my taking up my pen was not so much to discuss the great Roman's opinion of old age in general as to consider the doctrine launched upon the world by Professor Osler and the controversy to which this has given rise. I have already said that I agree with the eminent professor that all the greater activities within us generally cease at the middle period of life, and this I should put at 50 years of age, although older men may still continue to take their appropriate share in the affairs of the world. The work which they then do need not be original nor new, implying a retention of the same mental activity as they had previously possessed, but rather the turning to account the knowledge which they had previously gained and so utilising their experience for the benefit of others as did the Nestors of old.

Now I should like to say a few words "on the way of life which has fallen into the sear, the yellow leaf," and to speak of the waning powers of age. No one has ever said anything better of senility than our myriad-minded poet in the "Seven Ages of Man," as when he describes how the "big manly voice, turning again towards childish treble, pipes and whistles in his sound." I think this change of voice is one of the earliest signs of age, both to the subject of it as well as to the observer; indeed, I believe the former has become aware of it long before it has been apparent to others. When one considers the wonderful mechanism of the larynx with its power of forming the gravest and highest notes, to say nothing of the modulations requiring endless degrees of muscular and nervous power, and, again, its *timbre*: the man who has to use such an instrument must very soon perceive, when he cannot play upon it as before, that his old force, which is both nervous and muscular, is failing. However long this loss of power may be hidden as regards other parts of the body it must soon be evident in the voice, being an organ which is always in use. This is the more

noticeable if the elderly person is more than usually talkative. Garrulity itself is another well-known sign of advancing age, as noticed by Goldsmith in his description of the country village, when he speaks of

> "The hawthorn bush, with seats beneath the shade,
> For talking age and whispering lovers made."

Garrulity, without doubt, implies a weakened brain or mind, as it is so often observed at earlier periods of life in thoughtless chattering people and stands out in strong contrast to the more deliberate speech of the sensible and wise. Then amongst the other more characteristic signs of age is the loss of teeth which again greatly impairs speech. If the mouth displays nothing but "toothless gums" it may be that the stomach also participates with the similar infantile changes in the upper part of the alimentary canal and its requirements therefore become of the simplest character. Indeed, many of the most long-lived people have been sustaining their later years on bread-and-milk or similar kind of food. Certainly it is a great mistake to enforce the eating of the customary variety of food or recommending wine on account of the infirmities of age. I have often seen this done by medical practitioners with a feeling of wonder at their want of wisdom and ordinary sagacity. I am not forgetting the celebrated case of Cornaro, who lived to nearly a hundred years and published a personal memoir of his simple diet but who included wine in his diet. The ordinary Italian wine, as now, I apprehend was only slightly alcoholic.

Changes in the hair are of course some of the earlier signs of age, especially when greyness is perceived on the temples, whose very name is ever before us to warn us of the approaching years. This is an appendage to our body which is so open to artificial culture or alteration that its natural changes as age advances are not always to be traced. For instance, the hair is often seen in luxurious curls in childhood; afterwards in boys and men it is short as best suited, especially in the soldier, to all the activities of life, whether these be necessitated by work or games. An exception must often be made for the artist who always has his eyes open to pleasing effects as well as utility. In old age, again, as in childhood the hair is often worn longer and is thought to be more becoming to years. The great interest, however, of hair in my present discourse lies in the contemplation of the retrograde course of the old man to infancy and the approach of the sexes to one another, as is the case in early childhood. This is seen not only when the hair has turned grey but more especially when it falls off, leaving the head and face bald, or even still more so when women grow moustache and beard like men. I remember on one occasion being much puzzled as to the sex of a patient whom I was called to visit. When I entered the room I saw sitting up in bed a bald-headed person with a little grey hair on the temples and with a scanty grey moustache and beard; at the same time the top of the nightdress was loosened so that I saw displayed an elevation on each side which might have represented the female breasts or, if a man, a profusion of fat in the same region. I hesitated some time before I knew whether to address this human being as a man or a woman. This retrograde course from old age to infancy corresponds with the onward development of the child until the more marked differentiation of the sexes takes place. Therefore my difficulty with the epicene was similar to that which a stranger experiences when he puts the question to a nurse who holds a baby in her arms, "Is it a boy or a girl?" It is very evident that the marked constrast in dress is the main reason why men and women look so different when walking through the streets and explains why animals which have not this advantage have to make closer acquaintance when they wish to greet one another. This gives a possibility of truth to the story told by Balzac of a little boy and girl when looking at a picture of Adam and Eve in a church and the former said to the latter, "Which is Adam and which is Eve?" and to this the girl replied, "It is impossible to tell as they have no clothes on."

I need say little about the changes in the focus of the eye as it is the most usual sign of increasing years. But besides this there are other impairments which are less evident, as they only affect the form or colour of the pictures on the retina. I remember Liebreich when practising as oculist in London giving a lecture at the Royal Institution on this subject and how he pointed out that Turner's changed manner in his painting was due to senile defects in his eyes. Whereupon Ruskin was very angry and wrote to the papers on the following day advising Liebreich to leave art alone and to keep to his spectacles.

And now I must allude to the question of sleep, of which a large amount is taken and apparently necessary both in the first and second childhood; therefore, in both cases it evidently results from an "idle brain." The question of sleep and the amount necessary for health has excited every medical man's attention, but it is by no means determined what amount each individual wants and what is the average amount required by all. This doubt arises from our ignorance as to what sleep really implies—that is, whether the periodical inertness or quietude of the brain is really a rest and therefore the natural result of previous action or not. The term rest for the brain is scarcely applicable to the country boy who when out of work will sleep all day long, for it cannot be said that he has employed his brain in any way, either for physical or mental purposes. There possibly may be different kinds of sleep and degrees of sleep. A dreamless sleep may be better than one where the man is engaged all night in discussing matters of business, occupied with his travels, or having horrible visions. In a general sense we must all admit that rest for the body and mind at certain intervals is a part of the economy of living bodies and therefore it is called by the poet "Tired Nature's sweet restorer" or "Great Nature's second course, chief nourisher in life's feast," but there are occasions when sleep is by no means a blessing or Coleridge could not have spoken of the "pains of sleep," but they were mental vagaries which made him say—

> "Sleep, the wide blessing, seemed to me
> Distemper's worst calamity."

That which a medical man wishes to know is how to answer his patient who asks how much sleep he requires. It is said that John Wesley wishing to economise time found that five hours would suffice for him but then he was often seen to be asleep whilst riding on his horse. It might have been with him as with others that the little naps in the day are not reckoned in the calculation of the sleep required at night. Then again, there is the remarkable fact, which many people can vouch for as true, that a momentary sleep seems often to produce the rest for the time required. It is not an uncommon experience for many persons to feel so drowsy in the evening as to prevent their writing or even reading a book requiring close attention but that a moment's sleep or unconsciousness will clear their head and in a moment afford them that refreshment to enable them to begin their usual avocation. My remarks have reference to sleep generally but there are cases, of course, which require special attention both as regards regimen and medicine. The actions of the stomach and brain are so closely allied that the question of food in regard to sleep is most important. The only medical man whom I know who considers it very important to measure the amount of sleep is Sir Hermann Weber as he maintains that too much sleep is injurious. The current opinion, both of the public and profession, is that too little sleep is a great evil but that a good sleep or extra sleep is a boon never to be lost whenever it can be got. I am inclined to think that Sir Hermann Weber's views are the more correct, for just as the muscles are kept in tone by action and enfeebled by rest, so in a similar way the brain may be impaired by too much sleep or inertness. It is evident that when children, very old people, and imbeciles are constantly asleep the brain is certainly not resting from work it is simply inert. As sleep is necessary as a brain rest, so, on the other hand, it may be too prolonged and should come under the notice of the medical man. So obscure is the meaning of the word sleep that the kind of night which the patient has passed does admirable duty for all bulletins the object of which is to keep the public in ignorance of the nature of the patient's complaint.

Another symptom of old age is the failure of memory for recent events whilst it remains good for things long past. In other words, the brain at an early period of life was a *tabula rasa*, fresh and ready to receive new impressions which therefore became indelibly marked upon it. It may be, as Wendell Holmes suggests, that the brain cells are so many photographic plates which having received their impression are stored up for future use; consequently after many years very few fresh ones are left to make new pictures. I think when the memory is regarded in this way we obtain a much clearer idea of the meaning of the word, although it is purely speculative. I remember one day asking my class at the bedside the formula of a mixture in the new Pharmacopœia and if they knew the reason why I could never remember it. As they did not answer the last question I suggested that out of politeness they did not like to say that my age prevented me learning any new thing so

readily as when I was young. I admitted that this was true but it did not constitute my principal difficulty, and which none of them could conceive or realise: that the name of the mixture brought before me no less than three different Pharmacopœias, which were continually springing up and choking the fourth; could they tell me how to eradicate them from my memory? From this I may draw another moral: when so many of our memories formed in early age are still so green and accompanied by so many old pleasant associations, we may be sure that they have become highly coloured and probably much exaggerated in importance. Just as a particular spot familiar in youth has ever been connected in our minds with all that is delightful, so it may be with works of our own creation which, when done at an early age, were commended as good, original, practical, and evincing an advance in knowledge, producing so pleasant a feeling as to the estimation of our ability that it is not to be readily erased from our minds. Therefore, when we are getting old and have ceased to advance with the times we hug our child fondly to us and declare that nothing comparable to it has appeared since it was born. It has been to me a lamentable spectacle to see men venerated in our profession republishing their works of a past generation in order to show that nothing had since surpassed them. Their republication has been an expensive luxury to the author but an exhibition of failing weakness to his friends.

In speaking just now how the renewal of a visit to some old place proves to us that our impressions were but the phantasies of the brain, I cannot but remember the extraordinary opinion held by several of our most distinguished physicians when I was a student respecting the altered character of human beings since they were young, owing to the fact that at that time patients were cured by a certain mode of treatment and also cured by an exactly opposite method at a later period of their career. In the first instance all treatment was antiphlogistic, enforced by bleeding, leeching, blistering, purging, sweating, and the use of emetics; at a later period patients were found to require tonics and not depletion and the old medicines, such as mercury and antimony, were changed for quinine, nux vomica, phosphorus, and cod-liver oil. The chemists, indeed, managed to combine all these remedies together for the public benefit. At the same time wine and spirits were given to the sick and even in acute diseases brandy was very largely administered, for there was no gainsaying the truth of the statement enunciated by its advocates that all persons who were ill were at the same time weak. It was certainly a remarkable and even lamentable fact to hear some most eminent men in London and Dublin proclaiming the fact that the constitution of human beings had altered during half the generation in which they had lived. How could it be otherwise, they said, when patients were cured by the "knocking-down" treatment and afterwards cured by the "picking-up," or rather "building-up," method? It is curious to think why the simpler proposition founded on the bare facts did not present itself to them, which is this: that when acting on one theory they gave certain drugs the patients did not die and when acting on another theory they gave other drugs and the patients then also did not die. If they had done this they certainly must have come to the simpler conclusion as to the small value of their physic, instead of forming that most extraordinary and far-fetched theory that although man had been a dweller on this earth for thousands of generations and in England had preserved the best type as far back as history has recorded, yet he had now suddenly changed, all within half a century. When the whole profession followed in their footsteps it only means that man is a gregarious animal, or, in other words, follows the fashion. If this be not so we ought to try to discover the reason why at one time all ailing women were suffering from ulceration of the cervix uteri and soon afterwards from tilting of the uterus in various directions, so that they all had to wear appropriate pessaries, until it was discovered that sexual troubles did not lie in the uterus but in the appendages and the grand word salpingitis got rapidly into favour as the proper and prevailing complaint. I cannot gainsay this, for I well remember that when presiding over the Pathological Society a large dish of Fallopian tubes, like sausages, removed by operation, was presented to me for inspection. But fashions still prevail, so that at the present time I cannot say whether appendicitis or uric acid is the first in the running.

It will be observed that up to the present time I have done little more than refer to the more marked changes which occur in old age with respect to the bodily and mental functions. These are more or less common to mankind, but seeing how persons greatly differ mentally it is probable that a deterioration of their peculiar characters must take place in each individual in a very definite manner, and therefore just as we observe with great interest the development of the mental powers in a child, so probably it would be also instructive to notice the mode or order in which these several characters decay: how, for example, they would display themselves in the painter, musician, or mathematician. In considering the question we cannot but observe how some of the feeblest of human kind possess little more than an instinct to guide them in their daily duties and some of these, as taking care of their children, seem almost beyond their powers. I think it has not been sufficiently observed that what is called a bad and quarrelsome temper is often nothing more than a symptom of the excessive pain produced in persons of weak mind in their endeavour to answer a question which involves an effort of reasoning. For instance, a man innocently asks his wife the meaning of some bill unpaid when he is accused of worrying her, followed by an explosion of invectives. I have observed this so often that I feel sure that the outbreak is not of a moral kind but due to the painful effort of using the brain. Then at the other end of the scale we find the man of the most profound intellect who, when paying the penalty of extreme age, never approaches the imbecility which is the natural condition of so many others. It is therefore quite impossible to admit that there is such a thing as thought-reading, unless no more is asserted than a person may sometimes have knowledge of an event without having had any communication with others. But this is very different from one person knowing what is passing in the thoughts of another, for such reciprocity of thought would imply that two separate brains were in consonance; that the fibres of one were vibrating in unison with those of the other. To see two minds attuned to the same chord must be a very rare experience, for the want of accord seems the most usual thing; the bane of all conversation seems to lie in two persons not pursuing the line or the course of their opponent's argument; some word or expression is continually carrying him away from the point. Society could not exist, no dinner party could ever take place, if everyone knew what everyone else was thinking about.

I have never forgotten to what extent mental subtleties may reach when I think of a gentleman of the Jewish race who once consulted me on account of his not having regained his mental powers after a severe illness. I inquired of him what he exactly meant, and I found that he could attend to his ordinary business as before, keep his books, and remember names as he had hitherto done. He acknowledged all this but at the same time he knew that he had lost something which he considered was a higher faculty and above mere business work, and that was the power of "contriving." He had in his life formed many schemes which had been most successful and brought much pecuniary gain but he could do this no longer. In a word, he still retained his ordinary business powers but he had lost that which was much higher—his old power of "scheming"; this had gone but he hoped if he got stronger it would return. I apprehend there is much to be said for his contention and that there is a faculty of penetration or clear foresight which guides men to some ambitious end, apart from mere intellectual powers. This is often called "nous" which, of course, does not carry with it the whole meaning of the original νοῦς. Something of the kind is predominant in the English race. We have only to look back to the Elizabethan era to see how men with an extraordinary ardour penetrated to unknown seas and lands, whilst they and their Queen never failed for a moment to maintain the integrity of their country and to resist all assailants. The same has been seen in the men who have gained for us South Africa and have helped with their predecessors to form the British Empire. As *a propos* of my subject none of these men were above middle age. Of course, this faculty of "go" must be guided by reason. The combination was marked in our two great modern heroes—Wellington and Nelson. This might have been inherited from our first Norman king William the Conqueror, who, when addressing his soldiers before the battle of Hastings (as depicted on the Bayeux tapestry) exhorted them to fight *viriliter et sapienter*: With valour and wisdom.

There are many other points relating to the subject under review but I have now said enough. I feel inclined to offer

my apologies to the shade of the great Roman poet for having made use of the text which he employed for his celebrated essay. In comparison with the conciseness of his, mine might be called desultory; but this I cannot admit to be true, for there are so many subjects connected with our theme that I know I have already omitted many. What I have said, however, had better be left to the judgment of my readers.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF PROLONGED HICCOUGH ON TWO OCCASIONS AFTER THE ADMINISTRATION OF CHLOROFORM.

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THE patient, who was a healthy man, aged 48 years, was admitted into the Royal Halifax Infirmary on July 4th with a compound fracture of the tibia. He was there anæsthetised with chloroform, the wound was cleansed, and the bone, which was extensively comminuted, was wired. The operation lasted about 45 minutes. He commenced to vomit soon after the chloroform was discontinued and vomited all day on July 5th. On the 6th he vomited frequently and hiccoughed. On the 7th he vomited in the morning and hiccoughed, and was given two minims of tincture of iodine every hour for five hours; the vomiting stopped at 2 P.M.; five grains of calomel were administered at night. On the 8th he hiccoughed and a mustard plaster was applied to the epigastric region. On the 9th a constant current of about 20 volts intensity was applied, one electrode being placed over the epigastric region and the other over the left scalenus muscle. The hiccough ceased and did not recur.

The patient progressed favourably for three months, when it became necessary to incise his leg in three places owing to a rise of temperature and local signs pointing to the presence of pus. For this reason on Oct. 26th chloroform was again administered and the necessary incisions were made. The patient once more began to vomit after the administration ceased. On the 27th he vomited frequently. On the 28th the vomiting was not so frequent but hiccough again commenced. The constant current was reapplied but without effect. On the 29th and 30th he was still hiccoughing. On the 30th all food given by the mouth was stopped, four-hourly rectal alimentation being resorted to. A quarter of a grain of morphine was given hypodermically at 10 P.M., after which the patient slept but continued to hiccough during sleep. On the 31st a turpentine enema was given in the morning; three minims of creasote were given in capsule and five grains of calomel were given at noon and repeated in the evening. On Nov. 1st a mustard leaf was applied over the epigastric region. Food was again administered by the mouth as he expressed a desire for some and the withholding of it had not produced much effect. A quarter of a grain of morphine and $\frac{1}{150}$th of a grain of atropine were given at night. The hiccough stopped during the night. Five minims of tincture of belladonna, 10 grains of potassium bromide, and 10 grains of chloral hydrate were given every two hours for 12 doses. On the 2nd the hiccough commenced again early in the morning. 45 minims of tincture of castoreum were given at 5 P.M. The constant current was again applied at 8 P.M. The hiccough ceased for five hours. One grain of musk was given in pill at 8 P.M. and repeated every two hours for five doses. On the 3rd the patient was still hiccoughing. The constant current was applied three times at intervals but without effect. 30 minims of tincture of castoreum and one minim of carbolic acid in pill were given three times daily. The hiccough was now not so violent but occurred at intervals. On the 4th the patient hiccoughed occasionally but less often than before; he also vomited in the evening, a small quantity of blood being mixed with the vomit. Rectal feeding was therefore resumed. On the 5th there was not much hiccough during the day but there was a slight recurrence at night, so morphine and atropine were given. On the 6th the hiccough ceased and has not recurred.

The patient had a more or less constant hiccough for 10 consecutive days, for which the above remedies were applied, and to none of which we can attribute its cessation. Owing to the feeble condition of the patient during the second attack it was not thought advisable to wash out his stomach.

I am indebted to Dr. J. Crossley Wright for allowing me to publish this account of the case.

AN UNUSUAL CAUSE OF SUDDEN DEATH.

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A MAN, aged 28 years, of exceptionally strong physique and in vigorous health, met his death in the following circumstances. At 9 A.M. with a friend he partook of a hearty breakfast of fish, &c. He also took some Epsom salts in his tea; this I may note was found by analysis in the dregs left in his tea-cup. At 9.30 he went out into a small closet in the backyard. About three-quarters of an hour later his friend found him dead, sitting on the closet. I saw him about 15 minutes later; he had then apparently been dead an appreciable time; his colour was normal. Six hours after death, in association with Dr. A. G. Coullie, I made a post-mortem examination and minutely examined all the viscera. The heart had a thin layer of fat on the front aspect, the valves were normal, the muscular substance was, if anything, specially developed, the left ventricle was firmly contracted, and both sides of the heart were empty of blood. There was no distension of the stomach or bowels. All the other organs were healthy, except that the vessels on the surface of the brain were unduly full and the lungs appeared to be slightly emphysematous and frothy on section. In the œsophagus there were traces of regurgitated food and on opening the trachea and larynx we found a small amount of regurgitated food similar to that found in the stomach but not enough to cause any physical obstruction to the passage of air into the lungs.

Taking all the facts of the case into consideration it appeared to me that this man was straining to empty the bowels (which had not acted). There was a regurgitation of acrid, half-digested food into the larynx. This caused a spasm of the glottis. Being seated in a constrained position in a very small closet he was unable to recover his breath and the combination of these circumstances inhibited the action of the heart and caused it to stop. Brouardel, in his book on "Death and Sudden Death," gives many similar instances but in most of them the regurgitated food was present in sufficient quantity to block the trachea and bronchi and to cause actual physical impediment to the entrance of air into the lungs. In my own experience I have had a case in which a small glandular abscess burst into the trachea of a child, causing sudden death. The smallness of the amount of food found in the air passages in this man makes the case worthy of record, though, of course, it is well known that comparatively trivial injuries or irritation of the larynx may cause fatal spasm of the glottis.

Margate.

A CASE OF TETANUS SUCCESSFULLY TREATED WITH ANTITOXIN.

BY J. BASIL COOK, M.D., CH.B. VICT., M.R.C.S. ENG.,
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I AM indebted to Dr. H. P. Potter, medical superintendent, for permission to publish notes of the following case.

A boy, aged 15 years, was admitted to the Kensington Infirmary on Oct. 24th, 1905, suffering from tetanus. The history is as follows. He had injured his foot with a nail in his boot on Oct. 10th. He first noticed stiffness in the neck and the jaw on the 18th. He had been unable to walk since the 20th. On admission the patient had a small wound of the sole of the right foot which was almost healed. Trismus, risus sardonicus, and opisthotonos were well marked. His pulse was 96 and his temperature was 97° F. On the 25th he had had a fair night and opisthotonos was rather less. At 1.15 P.M. ten cubic centimetres of antitoxin were injected into the flank. This was repeated at 8 P.M. On the 26th he

had slept fairly well. Opisthotonos was more severe. During the morning the patient had several spasms, each lasting about 20 seconds. At 10 A.M. ten cubic centimetres of antitoxin were injected; this was repeated at 5 P.M. On the 27th there had been occasional spasms during the night. The neck, back, and legs were much stiffer; the arms were not affected. At 11.30 A.M. 20 cubic centimetres of antitoxin were injected. The spasms increased in frequency during the afternoon and about 7 P.M. became so severe that inhalations of chloroform were given. At 8 P.M. ten cubic centimetres of antitoxin were injected. 20 grains of chloral hydrate and 20 grains of bromide of potassium were administered every four hours. On the 28th the patient had had a fair night. Opisthotonos and trismus were about the same as on the previous day. There were occasional spasms during the morning. Ten cubic centimetres of antitoxin were injected at 12 noon. During the afternoon the spasms became more severe and more frequent (about two per minute). At 5 P.M. a quarter of a grain of sulphate of morphine was administered hypodermically. At 6 P.M. inhalation of chloroform was given for half an hour. At 7 P.M. a quarter of a grain of sulphate of morphine was repeated. 20 grains of chloral hydrate and 20 grains of bromide of potassium were given every six hours during the night. The patient went to sleep at about 8 30 P.M. On the 29th he had had a good night. Opisthotonos and trismus were less marked. There were no spasms during the night. At 6 P.M. he had had no spasms and had been very comfortable all day. From Oct. 30th to Nov. 4th there was marked improvement daily; there was no return of the spasms. Convalescence was somewhat delayed by a slight attack of bronchitis, which, however, passed off uneventfully. On Nov. 5th the patient got up for a few hours and on the 11th he was discharged cured.

The patient was fortunately able to swallow fluids during the whole illness. Trismus was the last symptom to disappear. In all 80 cubic centimetres of serum were injected; the serum was supplied by the Institut Pasteur de Paris. It is interesting to note that this is the second case of tetanus which I have successfully treated with antitoxin, but unfortunately the notes of the former case have been mislaid.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Discussion on Rheumatoid Arthritis.

A MEETING of this society was held on Nov. 27th, Sir LAUDER BRUNTON, the President, being in the chair.

Dr. A. E. GARROD opened a discussion on Rheumatoid Arthritis. He commenced by remarking, concerning diseases which implicate the joints, that whilst there was much to learn there was also much to unlearn. Owing to the way in which ideas on the subject had developed the prevalent notions were in many instances antiquated and shaped by traditions inherited from the past. The clinical group of cases spoken of by such names as rheumatoid arthritis and osteo-arthritis did not coincide in extent with the anatomical group based upon the presence of the osteo-arthritic changes in the joints and no single morbid entity corresponding to the rheumatoid arthritis of the text-books really existed. A short sketch was given of the systemic disease, probably infective in origin, in which fusiform swelling of joints and thickening of their capsules were attended by very conspicuous muscular atrophy and constitutional symptoms such as febrile disturbance, anæmia, brown pigmentation, and rapid pulse. Emphasis was laid upon the importance of distinguishing between the active stage of this disease and the stage of sequelæ and of adopting different lines of treatment in these two stages. It was suggested that the name rheumatoid arthritis should be appropriated to this disease, in which the joints did not exhibit the osteo-arthritic changes, at least in the active stage. Certain definite clinical groups of cases in which the osteo-arthritic changes were present were referred to, such as the hip-joint disease of advanced life and spondylitis deformans. It was suggested that the osteo-arthritic changes were not specific but were a group of degenerative lesions which occurred in joints as the result of various causes and might be developed as sequelæ of any disease which seriously damaged the articular structures. In some cases many joints became the seats of osteo-arthritic change but it was suggested that such cases of multiple osteo-arthritis were wholly distinct from those of the more acute disease previously referred to as rheumatoid arthritis. The character of the joint lesions, their distribution, the age incidence, and prognosis of the two maladies were quite different but they resembled each other in implicating many small joints, in chiefly attacking women, and in implicating the neck and temporo-maxillary joints. Rheumatoid arthritis was a peri-arthritis rather than an arthritis, but undue attention had been concentrated on the local changes in the joints. This and many other joint affections were merely local manifestations of a systemic or constitutional change. The majority of the arthritides were infective processes and a great variety of microbic affections—gonococcic, pneumococcic, and others—could set up arthritic mischief. Turning to the treatment of rheumatoid arthritis, absolute rest was indicated in the earlier stages, bath treatment and massage in the later. A gouty dietary was no use; a generous diet was usually more appropriate. Aspirin might relieve the pain in some cases. Guaiacol carbonate over long periods of time was reputed to be useful in checking the morbid process.

Dr. E. J. CAVE (Bath) commented on the difficulty of diagnosis judging by the cases sent to him as rheumatoid arthritis. In this disorder he was accustomed to divide his cases into those in which there was a direct infection of the joint tissues and those of tropho-neurotic origin. Possibly the origin of both was a toxic condition, and this in a certain number might possibly arise from affections of the genital tract. Just as there were several kinds of infection, so also the portal of introduction was certainly multiple. He wished to refer to two of these latter, the biliary passages, of which he had seen at least two instances, and the alveolar sockets of the teeth. Dr. Cave was persuaded of the frequency of the last-named source and referred to a case of pyorrhœa alveolaris by way of illustration. But in other cases clinically identical with rheumatoid arthritis no such source of infection had been discovered. In the treatment it was important to attend to the condition of the mucous membranes; he did not attach much importance to diet. Iodide of potassium and guaiacum were valuable remedies.

Dr. A. P. LUFF thought it was fairly easy to sort out the cases of septic arthritis from the group of rheumatoid arthritis. He objected to the term chronic rheumatism being applied to, or confused with, rheumatoid arthritis. The former was really a chronic fibrositis of the joints in which there was obvious creaking. Rheumatoid arthritis was, in his view, an infectious disease from one of the mucous membranes. In the earlier stages this disease was not necessarily symmetrical. He attached special value to two drugs when persisted in—iodide of potassium and guaiacol carbonate—especially when given together. Combined with balneological treatment the disease could certainly be ameliorated and often cured. Both drugs should be pushed to full doses.

Dr. C. W. BUCKLEY (Buxton) did not regard spondylitis deformans as a form of rheumatoid arthritis; the former was really a chronic fibrositis. In the treatment of rheumatoid arthritis he advocated climatic measures. He had also tried raw or lightly cooked meat diet associated with copious libations of hot water with the most beneficial results. This could be modified by the addition of a limited quantity of fats and carbohydrates according to the degree of loss of weight by the patient.

Mr. J. E. HARBURN (Buxton) believed that many of these cases sprang from an autotoxæmia and this might, he thought, be of gastro-intestinal origin. He agreed with the last speaker in the value of a modified Salisbury diet. Electricity and counter-irritation, arsenic, and guaiacol were also useful.

Dr. BERTRAM L. ABRAHAMS agreed with Dr. Garrod's opening remarks but he could not agree that Still's disease in children was identical with rheumatoid arthritis. It was very remarkable how the joints recovered in acute cases of rheumatoid arthritis, as shown by radioscopic examination, and this helped to prove that the lesion was really a peri-arthritis. Guaiacol carbonate was of value chiefly in the earlier stages, not in the later as in a case he quoted by way of example; it seemed occasionally to cut short the disease. Sand baths were valuable for more chronic cases.

Dr. F. PARKES WEBER thought that the septic type should

be regarded apart from the bulk of the cases of rheumatoid arthritis; they were of a more acute type and more liable to relapse. The chronic rheumatic affection in children first described by Still should not be regarded as identical with rheumatoid arthritis. Some cases of the former disease reacted to Koch's tuberculin. Spondylitis deformans was also totally distinct from rheumatoid arthritis.

Dr. W. HALE WHITE, however, regarded the chronic rheumatic affection in childhood described by Still as identical with rheumatoid arthritis. In regard to the pathology of rheumatoid arthritis there was, he believed, a disease distinct from septic arthritis which was *sui generis* but which might nevertheless be infective. In the case of rheumatoid arthritis in which he had been able to examine the lesions at an early stage the bones were perfectly healthy. It was, therefore, quite distinct from osteo-arthritis.

Dr. F. M. SANDWITH referred to cases of arthritis following dysentery resulting in deformity and atrophy, just as in rheumatoid arthritis which it clinically resembled. Might it not be possible to study the geography of rheumatoid arthritis? There were certain parts of the world in which this disease was very rare or absent and others in which it was very prevalent. For the treatment of the disease he had no great faith in drugs. The climate of Egypt was very favourable; fresh air, sunshine, and a liberal diet were the main factors of the treatment. There was not, as one of the speakers had suggested, a paucity of meat in Egypt.

Dr. F. J. POYNTON had been able to reproduce the lesions of rheumatoid arthritis experimentally. The organism proved to be the same as that of acute rheumatism. He believed that one organism was able to produce several different kinds of joint lesions. He was not quite sure that rheumatoid arthritis was a definite and distinct disease.

Dr. GARROD in replying remarked that osteo-arthritic lesions represented the residual lesions of rheumatoid arthritis and other joint diseases. He could not agree that all of these cases were the product of one microbe.

PATHOLOGICAL SOCIETY OF LONDON.

Necrobiosis in Fibromyoma.—Congenital Absence of Gall-bladder and Bile-ducts.—"Commixer."

A LABORATORY meeting of this society was held on Nov. 21st at University College, Dr. SIDNEY H. C. MARTIN being in the chair.

Dr. F. G. BUSHNELL demonstrated Necrobiosis ("Red" Degeneration) of Fibromyoma Uteri. The fibromyoma was removed by Mr. T. H. Ionides. On section the growth had not the white-whorled aspect of a fibromyoma but had a sodden, macerated, red or livid appearance. The change usually affected single interstitial tumours but he had seen it in multiple fibromyomata and Dr. W. W. H. Tate had recorded nine multiple ones. The colour was due to breaking up of red blood cells and diffusion of pigment but there was no great excess of fluid or blood present. The centre of the tumour might be soft and cystic and Gebhard explained this as due to the nutrition "running centripetally" and thus the necrosis commenced centrally. Microscopical examination showed the changes of necrosis—the cells lost their capacity for taking up nuclear stains. The sections showed decided engorgement of the vessels and a few Gram-staining cocci but no other inflammatory changes. The ultimate cause of the necrosis was unknown. Vautrin suggests that it was due to ischæmia produced by uterine contractions and in this respect its association with pregnancy was noteworthy. Old age was not a factor and Dr. Bushnell suggested that it was comparable to subacute necrosis occurring in other situations and that the growth of the neoplastic cells had exceeded their nutritional supply. It was quite apart from chalky or cheesy degenerations and uterine muscular spasm possibly played a part in compressing the vessels of the growth and gave rise to the severe pain and rapid pulse which were met with in this condition.

Dr. BUSHNELL also showed a Liver with Congenital Absence of the Gall-bladder and Hepatic Ducts which was removed from a child, aged eight months, who had been under the care of Dr. E. Hobhouse. The child had been jaundiced from birth but the urine, which appeared to be milky, contained no bile pigments or salts and no albumin. The fæces were quite white. The child took food well and was not sick but was very thin, only weighing 9 pounds at the time of death. The liver was of dark-green colour and of firm consistence; its surface was granular and delicate fibrous bands were seen posteriorly. The umbilical fissure contained the remnant of the umbilical vein, partly covered by the pons hepatis. The omental tuberosity and gastric impression could be distinguished. The square lobule was delimited from the right lobe by a fissure running from below upwards and outwards to the left, notching the anterior border. A second fissure passed from below upwards and to the right and cleaving the anterior border divided off a roughly triangular portion covered by peritoneum, the usual situation of the gall-bladder. This contained some fibrous tissue but on microscopical examination no structure resembling the gall-bladder could be found. The small omentum contained the portal veins but no excretory or hepatic ducts and no trace of an opening of the hepatic or pancreatic ducts was seen in the portion of the duodenum attached. The tuberous Spigelian lobe was separated from the left lobe by the fissure of the ductus venosus. The posterior surface showed a portion of the inferior vena cava separated from the porta hepatis by the caudate lobule. On microscopical examination there were present many so-called "bile canaliculi" (lined with cubical epithelium and containing some green pigment) in the interlobular connective tissue and in the perihepatic connective tissue. Although there was increase of the interlobular connective tissue there was no marked multi- or mono-lobular cirrhosis. Some of the ducts in Glisson's capsule were lined with subcolumnar epithelium. There was intra- and extra-cellular deposit of green pigment which did not give the iron reaction. Many of the liver cells were altered in shape. As the gall-bladder and bile-ducts appeared to be lacking rather than obliterated the condition had been described as one of congenital absence or malformation and not of congenital (pathological) obliteration of bile-ducts (the "congenital hepatic cirrhosis with obliterative cholangitis" of Rolleston). Weber inclined to the view that some cases of "congenital obliteration of the bile-ducts" were due to primary developmental malformation similar to that of congenital valvular disease of the heart not arising from intra-uterine endocarditis.

Dr. BUSHNELL also showed a Commixer, an apparatus for the mechanical admixture of blood cells and diluting fluid in Thoma Zeiss or Gower's pipettes. Variations in blood counts made from one sample of diluted blood might arise from (1) insufficient fluid on the slide; (2) from errors in counting and paucity of cells counted; (3) from errors in apparatus; and (4) unequal admixture of blood and fluid (von Limbeck). Variations in a count of 25 fields of $\frac{1}{10}$th cubic millimetre and dilution $\frac{1}{10}$th should not be greater than 14 per cent. (by Poisson's formula) of leucocytes, &c., counted. Figures were given showing that the error might amount to from 24 to 35 per cent., even when the above precautions were taken. He believed that this could be obviated by more complete admixture by this commixer.

CLINICAL SOCIETY OF LONDON.

Calcareous Fluid in the Pleura.—Periodic Respiration.—Tetany associated with Dilatation of the Sigmoid Flexure.

A MEETING of this society was held on Nov. 24th, Mr. H. H. CLUTTON, the President, being in the chair.

Dr. S. WEST communicated a case in which the Pleura contained several pints of Calcareous Mortar-like Fluid. The patient, a man, aged 32 years, was sent into St. Bartholomew's Hospital with the diagnosis of empyema. The whole of the left side was dull. Except for lateral curvature with the convexity towards the right the patient seemed well. By exploratory puncture a very small quantity of white fluid like Devonshire cream in appearance and consistency was with difficulty obtained. This contained very little fat, no trace of cells, and was chiefly composed of lime salts (mainly phosphate of lime). It was decided not to open the side as the lung was probably completely bound down and useless. The pleura was tapped in various places but only about an ounce of similar fluid was obtained. The patient remained well for three weeks, then he developed bronchitis and died after a few days' illness. It was subsequently learnt that his medical attendant had known of the existence of fluid in the left side for 12 years. At the necropsy the left pleura was found to contain about four pints of white mortar-like fluid, which formed a thick lining to the pleura, in places half an inch thick, containing

numerous flat calcareous plates; a few were adherent but most were detached. The left lung was completely destroyed; nothing was left of it except a little pigmented fibrous tissue around the bronchi. The fluid, pleura, and lung were carefully examined for tubercle bacilli without success. The spinal column presented no bone disease. There were no signs of tubercle in any part of the body. Analysis of the fluid showed that it consisted of equal parts of lime salts and organic residue; the latter was composed of fat and cholesterin chiefly and a heterogeneous residue. Presumably the mortar-like substance was the result of a degenerated empyema. The case was believed to be unique.—The PRESIDENT commented on the close resemblance between this calcareous material and that found in old tuberculous abscesses. In the history of chronic abscesses surgeons had to deal with such cases in the psoas and other regions. In these cases any evidence of tubercle might be entirely wanting, nevertheless collateral evidence showed the origin to be tuberculous. Such abscesses might have existed since childhood and have become quiescent. The condition was probably rare in the pleura.—Mr. A. E. BARKER asked whether the material had been inoculated into animals and Dr. WEST replied in the negative.

Dr. WEST also read a paper on Periodic Respiration. Periodic respiration was the name given to the breathing when it occurred in regular phases. There were two special forms of it: (1) Cheyne-Stokes breathing, and (2) grouped respirations. The characters of Cheyne-Stokes breathing were: (*a*) the series of respirations were separated by long pauses; (*b*) the gradual crescendo and diminuendo of the respiratory movements; and (*c*) the rate of breathing while it continued was rapid and might be 120 in the minute. The characters of grouped respirations were: (*a*) they occurred in series of two, three, or four respirations; (*b*) of equal depth without crescendo or diminuendo; and (*c*) of slow rate, not more than from eight to ten in the minute. Cheyne-Stokes breathing might be met with in central nervous affections, cerebral or bulbar, when the patient was moribund, but was most frequent and characteristic with a failing left ventricle. In the former the patient was dying from the disease, so that the phenomenon was of no clinical assistance. In the latter case it was of fatal omen, even when there were at the time no other alarming symptoms. Grouped respirations were met with only in nervous diseases, such as meningitis, and especially in the posterior basic form. If recovery took place the phenomenon passed off and it was of no importance for prognosis. These two forms of periodic respiration were therefore contrasted not only in character but also in prognostic value. Tracings of the two forms were exhibited.—Dr. A. E. GARROD commented on the physiological variety of true Cheyne-Stokes respiration and referred to an instance which he had recently seen which had occurred during the sleep of a man nearly 90 years old. In these cases the symptom was certainly not lethal, and in some of those occurring in heart disease the fatal issue might occasionally be postponed for a considerable period, at least nine months. He thought that the uræmic cases, which doubtless Dr. West had included under the heading of nervous affections, merited a separate consideration.—Dr. HERBERT S. FRENCH narrated the case of a woman who died with no kidney lesion but with a uterine sarcoma involving both ureters. She passed no urine for 12 days before death, and for eight of these she presented typical Cheyne-Stokes phenomena; there were no other symptoms of uræmia.—Dr. WEST, in reply, said that most of the instances in which Cheyne-Stokes respiration occurred in kidney disease were cases of failing heart and not of uræmia.

Dr. F. E. LANGMEAD (introduced by Dr. GARROD) communicated a case of Relapsing Tetany associated with Dilatation of the Sigmoid Flexure. The patient was a boy, aged six years, who was admitted under the care of Dr. Garrod into the Hospital for Sick Children, Great Ormond-street, on five different occasions, first in 1903, suffering from tetany associated with the evacuation of porridge-like stools. He was discharged free from these symptoms after each stay in the hospital, lavage of the lower intestine proving successful when other treatment had failed. There was general abdominal distension and a long hollow swelling could be made out in the left half of the abdomen. On the fourth admission hæmaturia was present. On the fifth admission the tetany was complicated by diphtheria which proved fatal. At the necropsy the hollow swelling proved to be the sigmoid flexure which was of very unusual dimensions. Two uric acid calculi were found in the right kidney. The interest of the case lay in the association of tetany with dilatation of the sigmoid flexure and with renal calculus. Only one recorded case of tetany associated with local dilatation of the intestine could be found. The dilatation of the sigmoid flexure was probably analogous to the dilatation of the stomach described by many authors and this bore on the etiology of tetany, since it showed that the stomach was not an essential factor. Although no record of tetany associated with renal calculus could be found there were three such cases among ten fatal cases of tetany in the post-mortem records of the Hospital for Sick Children, Great Ormond-street, whereas renal calculi occurred in only 0·57 per cent. of all necropsies at the hospital. The pathogeny of tetany due to gastric dilatation was obscure but the general opinion was that it was toxæmic in origin, and this case showed that the toxin might also come from the intestine.—The PRESIDENT remarked on the importance of such cases from a surgical point of view. He had met with three cases in one year of large volvulus of the sigmoid flexure. In these cases the capacity of the sigmoid flexure was immense and might hold five or more pints even in children. He had not heard of tetany in relation to these particular cases but no doubt it had been observed. Such cases ought not to be allowed to go without surgical treatment.—In reply to Dr. GARROD the PRESIDENT said that lateral anastomosis could be done or the sigmoid flexure could first be drained and after from one to three weeks the intestine could be repaired by a second operation done in more favourable circumstances.—Dr. WILLIAM EWART had seen tetany in chronic intestinal obstruction but not in cases of dilated colon.

LIVERPOOL MEDICAL INSTITUTION.

Anæsthetic Leprosy.—Unilateral Ophthalmoplegia.—Appendicitis.—Iodide of Potassium.—The Treatment of Syphilis.

A MEETING of this society was held on Nov. 23rd, Dr. J. R. LOGAN, Vice-President, being in the chair.

Dr. LESLIE ROBERTS showed a man, aged 42 years, suffering from Anæsthetic Leprosy. The symptoms commenced about 11 months previously, a dusky red spot appearing on the tip of the right great toe. The toe was now swollen to twice the normal size and the redness extended to the dorsum of the foot. On the right forearm near the wrist there was another patch similar in colour. The skin was anæsthetic over these regions.

Dr. K. A. GROSSMANN showed a case of Unilateral Ophthalmoplegia. The patient, a man, aged 34 years, had suffered severe pain in the left side of the head for three months; otherwise he was in good health. Two months later the headache disappeared, diplopia was observed, and the left eyelid drooped. There were now complete ptosis and paralysis of all the muscles of the eye with the exception of that supplied by the fourth nerve, the eyeball rolling on an antero-posterior axis when an attempt was made to look outwards and downwards. The pupil neither reacted to light nor to accommodation. The lesion was thought to be situated at a point where the third and sixth nerves perforated the meninges and to be of a syphilitic nature.—Dr. T. R. BRADSHAW fully agreed with the localisation arrived at by Dr. Grossmann and felt confident that the lesion was syphilitic in origin. Quite lately he had seen a similar case of ocular paralysis undoubtedly syphilitic in origin. In this case, however, there was also paralysis of the hypoglossal nerve of the opposite side.

Mr. R. W. MONSARRAT related a case of Appendicitis complicated by Subphrenic Abscess and Empyema. The patient was admitted to hospital five weeks after the commencement of an attack of appendicitis which had been treated by medical measures. At the time of admission the signs of thoracic disease overshadowed all others and the previous diagnosis of appendicitis was not then known. A small subphrenic abscess and a large right-sided empyema were opened under local anæsthesia. Four days later an abscess, the presence of which was not at first clear, was opened in the right loin. This lumbar abscess lay in front of the right kidney below the liver and extended downwards to the outer side of the colon as far as the pericæcal region. The patient was discharged well in seven weeks.

Dr. W. CARTER gave his experiences of the use of potassium iodide upon himself. He stated that after swallowing five grains of the drug dissolved in half a fluid ounce of water traces of it were recognisable in the urine in from 12 to 24 minutes and continued to be found for from 35 to 40 hours. It appeared as early in the saliva and was observed in it from four to five hours longer. It was never found in the fæces. In these small doses (five grains in 36 hours) potassium iodide gave relief from the pains of a crippling neuritis which had lasted for two months.

Dr. DAVID SMART read a paper on the Modern Treatment of Syphilis. He much regretted the general apathy in England on the subject of venereal disease, as instanced by the absence of lock-hospitals in large centres and in large naval and military stations. He referred to the great importance of general hygienic treatment—namely, rest to the body and nervous system; rigid regulations as regards tobacco and alcohol, laying especial stress on the anti-epsis of the mouth and teeth. After discussing the value of mercury in the several stages, he mentioned the three main means of administering it: by the mouth, by means of intramuscular injection, and by inunction, expressing a decided preference for the last mode of treatment, both in private and in hospital practice. An interesting description of Aix-la-Chapelle and its inunction "Kur" was given, the paper concluding with an eloquent appeal for the more general adoption of this method in England.—Dr. G. G. STOPFORD TAYLOR said that during the last 18 months he had regularly practised the intramuscular method of administering mercury and the way in which patients had improved had been a revelation to him. He should be very sorry to return to the oral method of medication and considered the routine treatment by inunction to be impossible in this country.—Dr. A. BERNARD said that when all the symptoms pointed to the syphilitic character of the primary lesion it was his invariable practice to administer mercury without waiting for the onset of secondary symptoms. He greatly preferred to employ inunction or intramuscular injections rather than to give the drug by the mouth.—Dr. F. H. BARENDT said that in private as well as in out-patient practice he used the oral method. He found it, on the whole, the most satisfactory one and it did not interfere with the patient's occupation and personal comfort or betray his secret. When the nature and seriousness of the affection were placed clearly before the patient no difficulty was experienced in keeping him under observation for three years.—Dr. LESLIE ROBERTS spoke in favour of the oral method. In the later lesions of syphilis he had used inunction with marked benefit. He considered that there was some appreciable danger in intramuscular injections.—Dr. W. ALEXANDER, Dr. W. B. WARRINGTON, Mr. E. M. STOCKDALE, Dr. BRADSHAW, Mr. F. C. LARKIN, Mr. F. T. PAUL, Dr. R. W. MACKENNA, and Dr. A. G. GULLAN also took part in the discussion.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.—The annual general meeting of this association was held on Nov. 10th at the Medical Society's rooms, 11, Chandos-street, Cavendish-square, W., the President, Mr. W. J. Chichele Nourse, being in the chair. The following were elected officers for the ensuing year:—President: Mr. R. H. Woods. Vice-Presidents: Mr. W. H. Kelson, Dr. John Macintyre, and Dr. J. Walton Browne. Council: Mr. Chichele Nourse, Mr. Mayo Collier, Mr. W. Stuart-Low, Dr. Andrew Wylie, Dr. Arthur J. Hutchison, and Dr. A. Brown Kelly. Honorary treasurer: Dr. Percy S. Jakins. Honorary secretaries: Mr. Harold S. Barwell and Mr. J. M. Carvell.—Dr. V. H. Wyatt Wingrave showed a case of Abductor Paralysis of the Right Vocal Cord in a male, aged 58 years, in which difficulty of deglutition and hoarseness appeared six months ago. The right cord was fixed and the left was impaired. A bougie met with slight resistance at the level of the cricoid. There was a specific history. The patient had been under specific treatment for three months without improvement. He had not lost weight; there was no fœtor or any toxic signs.—Mr. H. Clayton Fox considered the case one of gummatous infiltration of the œsophagus involving the recurrent laryngeal nerves.—Dr. J. Dundas Grant was disposed to attribute this paralysis to involvement of the right recurrent laryngeal in carcinoma of the œsophagus; the symptom, he thought, would soon become well marked.—Mr. Chichele Nourse exhibited a man, aged 37 years, who had a growth of the size of a small pea attached to the edge of the right vocal cord at the junction of the anterior and middle third. On attempted phonation it came up between the cords and prevented them from approximating. At the same time the right arytenoid passed across in front of the left.—Mr. J. Bark suggested a soft fibroma of embryonic origin springing from the anterior commissure.—Mr. Kelson said that as the growth was under the cords it was difficult to estimate the extent.—Dr. Dundas Grant did not consider that the anomalies in the movements of the vocal cords could be explained by mechanical obstruction. He thought that there was underlying disease, the nature of which would be revealed by the removal of the growth and its examination by the microscope.—Dr. Wylie showed a case of Congenital Specific Disease in a lad, aged 15 years, who had been weakly since birth. In August last he was sent to Dr. Wylie to have tracheotomy performed owing to repeated attacks of difficulty in breathing. The soft palate was bound down to the pharyngeal wall by cicatricial tissue, the epiglottis was nearly gone, and the ventricular bands were swollen. The movements of the cords were unimpaired. The patient weighed 4 stones 5 pounds. There was slight cough but no tubercle bacilli were present. Inunction of mercury and Donovan's solution internally were tried with great success. The boy's present weight was 5 stones 6 pounds.—The President said that these cases presented great difficulty in treatment among the poor and ill-nourished.—Dr. Dundas Grant said that he would have had great difficulty in differentiating from lupus of the larynx by laryngoscopical examination.—Dr. Wylie also showed a case in which solid paraffin had been injected into the nose without an anæsthetic for treatment of "Saddle Nose." He considered it a great advantage to operate without an anæsthetic, as the patient could sit facing the operator.—Mr. Bark congratulated Dr. Wylie on the successful result.—Mr. Clayton Fox thought that one very important danger was eliminated by this method—namely, embolism.—Mr. E. D. Vinrace thought that the case should be exhibited in about two years' time to prove the permanency.—Dr. Dundas Grant suggested that a difficulty in following up female patients might be that from increase of beautification they were likely to get married and from change of name be less easy to trace.—Mr. Stuart-Low showed two cases illustrating the Retention of the Cholesteatomatous Lining in the operation for Acute Mastoiditis, a sequel of chronic suppurative disease. He said that these cases illustrated a new departure in the conservative surgery of the ear and he considered that he was fully justified by the results, as the discharge had ceased and the hearing power was preserved almost entirely. Mr. Stuart-Low, in reply to the President, Dr. Hutchison, Dr. Wingrave, and Dr. Dundas Grant, said that he would bring those cases before the society again in six months' time, so that the permanent good results of leaving the cholesteatomatous lining might be tested and inspected. The hearing power was retained to a much greater degree than was usual after a radical mastoid operation.—The President, in the course of a very interesting address, strongly recommended the use of a dental chair in throat, nose, and ear work, he having used one for the last three years, for which he claimed the following advantages: (1) the ease with which it could be raised and lowered to suit the patient or operator; (2) the fact that the operator could get more intimately at his work; (3) the avoidance of any constraint in the operator's posture, a matter of no small importance in prolonged operations; (4) the rapidity with which the patient could be brought to the horizontal position in case of nervous or toxic syncope; and (5) the patient's position was one of complete rest.—A vote of thanks to the President was proposed by Dr. Dundas Grant, seconded by Mr. Chichele Nourse, and carried unanimously.

HUNTERIAN SOCIETY.—A clinical meeting of this society was held on Nov. 22nd, Dr. F. J. Smith, the President, being in the chair.—Dr. Williamson showed three patients:—1. A woman, aged 37 years, with Mitral Stenosis. There was a diastolic murmur heard over the pulmonary area and conducted to the right. The pulse was not of "water-hammer" character. Dr. Williamson considered that the murmur was due to pulmonary regurgitation. 2. A girl with Pulmonary Stenosis. 3. A man, aged 54 years, cachectic and wasted, complaining of cough and general weakness. The breath sounds over the right lung were diminished. Dr. Williamson considered that a mediastinal growth was invading the lung and pressing on the right bronchus.—Dr. W. J. McC. Ettles showed Coloured Representations of the

Fundi of two patients. 1. A man whose vision had deteriorated gradually during the last three years. When first seen in September, 1905, his vision in the right eye was only $\frac{1}{20}$, while with the left eye he had perception of light only. He had to be led about and was almost blind on account of extensive choroiditis. He denied having had syphilis but had had a chronic sore throat and skin eruptions. Subconjunctival injections were given of four minims of a 1 in 5000 solution of cyanide of mercury, together with four minims of a 1 per cent. solution of acoin, increased later to ten minims of the mercurial solution. The vision gradually improved and the man could now read $\frac{5}{6}$—i.e., it had increased 15-fold. During the last 20 days there had been little further improvement and the treatment was being supplemented by weekly intra-gluteal injections of ten minims of Colonel Lambton's grey cream—i.e., one grain of metallic mercury. 2. A patient who complained of difficulty of seeing with the right eye since an accident 16 months previously. A tumbler thrown at him struck the right eye which became suffused with blood. There were also extensive chemosis and orbital discolouration. The vision in the right eye was $\frac{1}{4}$ and in the left $\frac{1}{2}$. There was no error of refraction. He had diplopia owing to paralysis of the right external rectus and superior oblique muscles. Two fine linear ruptures could be seen in the lower half of the right fundus and atrophy of the lower part of the disc. The perimeter showed the lower half of the retina to be blind. The line of demarcation was quite sharply defined, so that the patient had monocular horizontal hemianopia. Taking into consideration the trauma, orbital hæmorrhage, isolated paralyses, hemianopia, and optic atrophy, Dr. Ettles thought that the case was one of fracture of the bony wall of the orbit involving the sphenoidal fissure and optic canal. The localised periostitis involved the fourth and sixth nerves. The condition of the optic nerve seemed to be more likely to be due to a localised retro-bulbar neuritis than to thrombosis.—Dr. Lewis Smith showed: 1. A female patient with (*a*) extensive lupus of the face, greatly improved by the Finsen treatment; (*b*) tubercle at the right apex; (*c*) transposition of viscera; (*d*) mitral stenosis and a diastolic murmur heard over the aortic area; and (*e*) Pericarditis. 2. Part of the Large Intestine of a girl, aged 14 years, who had had four weeks of pyrexia, followed by a week's apyrexial period and then two weeks with a temperature of 104°–106° F., leading to death. Post mortem the lower four feet of the small intestine showed numerous clean healing ulcers, while in the large intestine were multiple small sloughy ulcers. Dr. Smith drew attention to the following points: (1) the Widal reaction was negative three times in the course of a fairly typical case of enteric fever; (2) the colon is frequently affected in enteric fever; (3) a relapse means re-infection; and (4) relapses are sometimes fatal.—Mr. Farrant, introduced by Mr. A. H. Tubby, showed: 1. A patient with Endarteritis Obliterans. One foot was amputated a year previously for gangrene, with thrombosis of the popliteal and anterior and posterior tibial arteries. A similar condition was now appearing in the other leg. 2. Fibrous Ankylosis of the Knee after what appeared to be an ordinary attack of acute rheumatism. (Several Fellows considered that the knee was gonorrhœal.) 3. A case of Nerve-grafting, the hypoglossal being used to innervate the facial muscles after division of the facial nerve in the evacuation of a tuberculous abscess. The patient began to recover some facial movement in one month. 4. Another case of Nerve-grafting, some fibres of the internal popliteal being made to innervate the soleus and gastrocnemius muscles of a boy with infantile paralysis. The boy could now extend his ankle.—Mr. F. R. Humphreys showed a woman, aged 55 years, with a small Rodent Ulcer on her Nose and a Superficial Ulcer of uncertain character on her Lower Eyelid.

ROYAL ACADEMY OF MEDICINE IN IRELAND: SECTION OF OBSTETRICS.—A meeting of this section was held on Nov. 17th, Dr. Richard D. Purefoy, the President, being in the chair.—The President's Address was the first business of the meeting. It dealt with the early history of the Obstetrical Society which was inaugurated in November, 1838, under the presidency of Dr. Evory Kennedy, Master of the Rotunda Hospital, in one of the rooms in which its meetings were held for nearly 25 years subsequently. In 1862 the constitution of the society was altered and the late Dr. Kidd became secretary. The objects of the society were primarily the study and elucidation of obstetrics, gynæcology, the physiology of reproduction, fœtal structure and physiology, infantile development and disease, and medical jurisprudence.—Dr. DE LA HARPE read a paper on the Treatment of Eclampsia in the Rotunda Hospital. He brought forward statistics of the hospital for the past 13 years. These had not been published before and consisted of a series of 71 cases treated by morphine injections and exclusively palliative measures. 12 died, a percentage of 16·9, results which had never before been approached by any former published statistics of the hospital. He warmly advocated the more general adoption in practice of the Rotunda methods which briefly consisted of (1) injections of morphine up to two grains in 24 hours; (2) thorough lavage of the stomach by means of the syphon tube; (3) purgation by castor oil and croton oil combined, these being passed through the tube before its removal; (4) thorough lavage of the lower bowel; (5) keeping the patient lying on her side to prevent fluids accumulated in the mouth from entering the lungs and causing the so-called œdema of the lungs to occur; (6) the application of poultices to the loins; and (7) the use of plenty of saline fluid to be administered through stomach and rectal tubes or injected beneath the breasts. No operative interference of any kind was considered advisable. Vapour baths and hot packing were not used, neither was nourishment given during the acute stage.—Sir Arthur V. Macan said that the treatment by morphine was well known to him, even before Sir W. J. Smyly was Master of the Rotunda. One reason why he did not adopt the morphine treatment was that he was satisfied with the results obtained by the treatment used while he was Master. This was a large enema of turpentine and chloroform to begin with, followed by chloral hydrate per rectum, as much as two drachms in three or four hours. The sweating treatment was not much used but since then he had used the hot air bath with very satisfactory results. He thought that the profession almost universally recognised that the termination of labour was a very important point in the treatment, for the use of dilators, Cæsarean section, &c., all pointed to a belief in the efficacy of delivering the woman and a non-belief in the efficacy of the morphine treatment.—Mr. Andrew J. Horne said that to compare statistics of 25 years ago with statistics of the last ten or 15 years was very erroneous owing to the advent of Listerism, by which the mortality had been greatly lessened. No special form of treatment could be relied on and practitioners must be prepared to use morphine or, in certain cases, Cæsarean section, vaginal section, Bossi's dilator, &c.—Mr. E. Hastings Tweedy said that in his opinion the infrequency of eclampsia in Dublin was due to the habits of the people. In hot countries people accustomed themselves to very little fluid, but in Ireland the women drank a good deal of tea and other liquids.—Dr. Thomas Neill said he had seen a good number of cases of eclampsia in the Coombe Hospital. In one remarkable instance the presentation was transverse and as soon as the malposition was corrected the eclampsia ceased. The other cases were treated with morphi . Some of them were very bad, but all got well. Vapour baths and two or three minims of croton oil were given in every case.—Dr. Gibbon Fitzgibbon said that in his opinion the question of purgation was a good deal neglected and deserved more attention than it received.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Infirmary on Nov. 21st, Mr. W. Handcock, the President, being in the chair.—Mr. J. B. Hall showed: 1. A Series of Fibroids from cases of Abdominal Hysterectomy. One of these was probably a unique specimen. It was a fibroid uterus, in the middle of which was a fœtus firmly imbedded, which must have been there many years. 2. Carcinoma of the Cæcum from a case of Colectomy.—Mr. W. H. Horrocks showed Hyatt's Colotomy Truss.—Dr. A. Little showed a Piece of Steel removed from the Vitreous Chamber of the Eye by the Electro-magnet.—Dr. Mantle showed a patient with Clonic Spasm of the Elevators of the Tongue.—Mr. C. F. M. Althorp read notes on four cases of Removal of the Gall-bladder.—Dr. T. J. Wood showed: (1) a Uterine Fibroid blocking the Pelvis and causing retention of urine; and (2) a Tuberculous Kidney removed by operation.—Dr. F. W. Eurich gave a Microscopic Demonstration.—Mr. Horrocks read notes on a case of M-shaped Obstruction of the Sigmoid Flexure. A man was admitted to the Royal Infirmary complaining of pain in the lower part of the abdomen on the left side. The first attack of pain occurred

two months previously and since then the attacks had increased in frequency and severity. There was no vomiting but the bowels were confined during the attacks. Some emaciation was present and there had been a recent loss of weight. The abdomen was not distended. No renal tumours could be felt. In the left iliac fossa an ill-defined swelling was felt which remained after free evacuation of the bowels. The urine was normal. At the operation an oblique incision was made one inch internal to the left anterior superior spine. The sigmoid flexure was found to be distended and its walls were thickened and hypertrophied and the upper part had a long mesentery allowing over-free movement of the bowel. On tracing the colon downwards it seemed to be fixed at its middle. Below this the calibre of the sigmoid flexure was much reduced. Thus the bowel fell into an M-shaped curve. The peritoneum covering the brim of the pelvis had evidently been stretched by the violent contractions of the bowel. The adhesion of the bowel to the peritoneum was freed. The patient made an uninterrupted recovery.—Dr. Rabagliati read a paper on Some Laws of Applied Causation determining Medical Practice.

CLINICAL SOCIETY OF MANCHESTER.—An ordinary meeting of this society was held at the Palatine Hotel on Nov. 21st, Dr. E. T. Milner, the President, being in the chair.—Professor R. B. Wild read a paper on Some Clinical Aspects of Syphilis, with Special Reference to Treatment. This paper was based upon an analysis of 1000 cases of syphilis seen at the Manchester and Salford Hospital for Skin Diseases during the past 12 years and afforded some insight into the incidence of syphilis among the general working-class population, apart from the strictly venereal cases which are not taken at the skin hospital. The cases of syphilis formed 5·17 per cent. of the total patients and compared favourably with the 6·1 per cent. of syphilitic cases found by Dr. H. Radcliffe Crocker in out-patient hospital practice in London and with the 8 to 10 per cent. of syphilis in America, as shown in the statistics compiled by the American Dermatological Association. Of the 1000 cases 76 were congenital, 55 were primary, 276 were secondary, and 593 were tertiary. Of the congenital cases 60 were infantile and 16 were later manifestations; in addition four cases of infantile acquired syphilis occurred. Of the 55 primary cases no less than 14 were extragenital, the most frequent sites being the lips and fingers. One interesting point was that while there was a difference of 10 years between the average ages of the secondary and tertiary cases, in several patients precocious tertiary ulceration occurred while the secondary rash was still present and, on the other hand, one case was described in which 38 years elapsed between the secondary and tertiary lesions. Of the cases of secondary syphilis the most interesting were three cases with exceptionally marked febrile reaction at the onset of the rash, three cases of purpuric secondary syphilide, five cases of pigmentary syphilide on the neck in women, and 15 cases of frambœsial syphilide. As regards tertiary syphilis the chief types were: (1) the nodular serpiginous asymmetrical rash, (2) a similar rash with superficial ulceration, and (3) gummata and deep ulceration. In many of these tertiary cases trauma or some intercurrent dermatitis appeared to be a localising if not a causative factor. The late syphilide of the palms and soles with keratosis or ulceration occurred not infrequently and was particularly obstinate to treatment. One point worthy of note was the fact that out of 593 cases of tertiary syphilis of the skin in only three was there any sign of implication of the nervous system. The co-existence of syphilis with other diseases was a fruitful source of difficulty in diagnosis; the most common complication was a seborrhœic dermatitis, but in other cases psoriasis, scabies, erythema multiforme, leucoderma, lichen planus, and scarlet fever co-existed with syphilis. The remainder of the paper was devoted to a discussion of the various methods of treatment and stress was laid upon the natural tendency to recovery in secondary syphilis and the value of treatment in preventing tertiary manifestations. With regard to mercury, preference was given to the administration by the mouth in ordinary cases as giving better ultimate results with greater safety. Intramuscular injections were reserved for exceptional cases but might be the best method of administration under special conditions, such as the services or lock hospital practice. Intravenous injections were quite unsuitable for out-patient practice. With respect to iodide of potassium it was more valuable than mercury in deep tertiary ulcerations but was best given in full doses for short periods and did not prevent recurrence if continued. In many cases of tertiary syphilis the use of mercury was essential but was better given separately from iodide of potassium unless the latter were used in small quantities merely as a solvent for the mercuric iodide. None of the recently introduced vegetable alteratives had proved to have any specific action and they were quite untrustworthy for the treatment of syphilis.

CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on Nov. 21st, Dr. J. Barry Ball, the President, being in the chair.—Dr. W. Ewart showed a case of Situs Inversus, in which the heart was on the right side and the liver on the left side.—Dr. Alfred Eddowes showed a case of Lupus of the Nose treated extranasally with nitric acid and intranasally by radium. He also showed a case of Sclerosed Lupus of the Face treated by excision, which was now quite well, keloid being left after operation.—Mr. A. F. Penny read a paper on the Modern Encroachments of Surgery on the Domain of Medicine. That the surgeon was rapidly encroaching on the domain of medicine was becoming more apparent every day, so much so that it was becoming increasingly difficult to limit his sphere of work. The surgeon, too, was daily gaining more precision in diagnosis and was far outstripping his medical colleague in that respect, and every new discovery in the realm of medicine was a distinct gain to him. He dealt with hard facts, the physician with abstractions. Reference was made to the marvellous developments of intestinal surgery in recent years and especially to the surgical treatment of chronic gastritis, and the extreme value of the operation of gastro-enterostomy.

Reviews and Notices of Books.

The Diagnosis of Diseases of Women. By PALMER FINDLEY, B.S., M.D., Assistant Professor of Gynæcology and Obstetrics, Rush Medical College in affiliation with the University of Chicago. Second edition, revised and enlarged. Illustrated with 222 engravings in the text and 59 plates in colours and monochrome. London: Baillière, Tindall, and Cox. 1905. Royal 8vo, pp. 588. Price 21*s.* net.

THIS book, with the title "The Diagnosis of Diseases of Women," is in reality rather a work on the pathology of the pelvic organs. The author quite rightly thinks that a good knowledge of the pathology of a disease is a considerable step towards the making of a correct diagnosis. For this reason he lays great stress on both macroscopic and microscopic morbid anatomy and the indications which it affords from the clinical point of view. The book is the first of its kind to appear in the English language. Other works on diagnosis have dealt with the matter more especially from the clinical point of view. There can be no doubt as to the correctness of the author's contention that the microscope must play a very large part in the correct diagnosis of many of the pelvic affections of women and for this reason the present work cannot fail to be of assistance to students and practitioners. It is divided into three parts dealing respectively with General Diagnosis, Special Diagnosis, and the Diagnosis of the Diseases of the Urinary System.

In discussing the question of menstruation Dr. Findley puts forward the view that the Fallopian tube undoubtedly appears to take part in the process in a small number of cases. In three out of nine menstruating uteri examined after removal by hysterectomy the author found changes in the tubes similar to those found in the body of the uterus. Plate II. is a representation of a tube showing such changes. The tubal mucosa is engorged with blood and there are hæmorrhages into it and into the lumen of the tube, whilst the lining epithelium is intact. It would certainly appear from these specimens and from clinical observations that the tubes take part in the general

engorgement of the pelvic organs at the menstrual periods but whether they can really be said to menstruate is another question. In the chapter on dilatation of the cervix the use of tents is deprecated; they are said to be slow and uncertain in their action and a source of danger from infection. We think that this view of the matter is hardly correct. Tents are of the greatest possible assistance when employed as a preliminary to the use of Hegar's or Kelly's dilators and they minimise the risk of tearing the cervix to a very considerable degree. A very valuable chapter which has been added to this edition is that on the examination of the blood. The importance of leucocytosis and the great danger of operating in grave cases of anæmia are pointed out. Another new and useful chapter is one on the bacteriological diagnosis of the diseases of women. The section dealing with ectopic gestation is disappointing. The author treats of the diagnosis of the condition extremely well and as this is primarily a book on diagnosis, perhaps that should be sufficient, but, on the other hand, the section dealing with the anatomy of tubal gestation is poor. Dr. Findley follows the teaching of Dr. J. C. Webster and says but little of the results which have been obtained by other recent workers in this field.

The description given of hydatidiform mole and chorio-epithelioma is exceedingly good and is the best account of these important diseases which we remember to have read. Dr. Findley recommends that two weeks after the expulsion of a hydatidiform mole the uterus should be curetted and the scrapings examined under the microscope. If in the decidua Langhans' cells and the syncytium are found to be proliferating then the whole uterus should be removed without delay. The chapter on fibroid tumours of the uterus contains a clear account of their pathology and structure. We cannot agree, however, with the author in his apparent endorsement of Dr. C. P. Noble's conclusion that one-quarter of the cases of fibroids would result in chronic invalidism and one-third in death if no operation were performed. Nor is the further conclusion a fair one—namely, that "resort to early operation will effect a saving of 25 to 30 per cent. in mortality, in addition to the perhaps greater saving in the mortality which follows operation as compared with that which is incident to the history of fibroid tumours." It would have been more satisfactory if either Dr. Findley or Dr. Noble could tell us more certainly what is the mortality incident to fibroid tumours. Surely it is no longer necessary to point out the many fallacies inherent in any attempt to estimate the mortality of fibroid tumours from the cases met with in hospital practice alone. We are glad to see that the author does not countenance the teaching so current at the present time in the writings of some gynæcologists, that fibroid tumours complicating pregnancy and labour are a grave menace to the patient's life. As he says: "It must be admitted that fibroid tumours of the uterus, even of large proportions, seldom impede the progress of labour. Statistics from the large clinics of the world justify this assertion." In the section dealing with the pathology of the ovaries Dr. Findley gives the results of his microscopic and clinical studies of some 180 cases of cystic degeneration of these organs. He concludes that this condition is almost always the result of chronic ovaritis due to infection or passive congestion of the ovaries and that too much stress must not be laid on the complaint of pain and tenderness as the explanation frequently lies in the presence of associated lesions or in an instability of the general nervous system.

The book is a good one from the pathological point of view, although clinically it does not attain so high a standard. It is a pity that Dr. Findley has not expended a little more care on his grammar and on the correct spelling of many of the names which he quotes. Such expressions as "a polypoid myomata," "cardiopathy of uterine fibroids," "back of the obstruction the menstrual blood collects," "gasegenic bacteria," and "a submucous adenomyoma averaging 55 grams" are inexcusable; while the numerous errors in names and words, as, for example, von Wenkei, Löhlen, Kalkenbach, Gerhard, and Müttleschmertz, are evidences of carelessness in the revision of the proofs such as should not be found in the second edition of a scientific work. The illustrations are uniformly excellent and the index is sufficient.

Organotherapy, or Treatment by Means of Preparations of Various Organs. By H. BATTY SHAW, M.D. Lond., F.R.C.P., Lecturer in Therapeutics, University College, London; Assistant Physician to University College Hospital, &c. Illustrated. London, Paris, New York, and Melbourne: Cassell and Co., Limited. 1905. Pp. 256. Price 6*s*.

THIS volume forms the third of the series of monographs issued by Messrs. Cassell and Co. under the title of "Modern Methods of Treatment" and offers a very valuable digest of the subject with which it deals. The various organs from which medicinal preparations have been made are discussed in turn, each section opening with an account of the anatomy and physiology of the organ and thus leading up to its pathology and therapeutic uses. The thyroid gland is naturally first considered. The author leans towards the view that the thyroid and parathyroid glands are the respective seats of two different secretions, both necessary for the well-being of the body at large. While myxœdema is due to deficiency of thyroid material, Graves's disease is perhaps caused by perversion of parathyroid secretion. No satisfactory treatment of the latter malady by organic preparations has, however, been discovered. The suprarenal glands are next considered: in these organs the very different structure of the cortex and medulla respectively indicates that these parts fulfil different functions, the medulla probably furnishing an internal secretion and the cortex possibly acting as an excretory organ. The physiology of these glands is, however, as yet very obscure. Very definite physiological effects follow the use of extracts of the glands and many of such preparations are obtainable. Medicinally they are chiefly of use as local styptics and as aids to local anæsthesia; in Addison's disease, which is usually attributed to insufficiency of suprarenal secretion, no very certain therapeutic effects have been obtained by the employment of organic extracts. In subsequent sections the author deals with the liver and pancreas, the testicle and ovary, the pituitary body, the kidney, the thymus, the placenta, and so on. Of all these organs the ovary is perhaps the one to which we have most reason to attribute the formation of a distinct internal secretion. Little therapeutic effect has apparently followed the use of pancreatic extracts in diabetes or of renal preparations in uræmic conditions.

We congratulate the author on the very comprehensive summary which he has given of the work which has been done with regard to the physiology of the ductless glands and on the use of organic preparations. The book affords most interesting material for study. If we may offer some slight criticism with a view to possible future editions we would suggest that the author is too much inclined to let facts speak for themselves and that a little more dogmatism as to the value of organo-therapeutics in various diseases and more detailed comparison of the properties of different preparations would have tended to make the book of greater use to practising physicians. We should also have been glad to read an account of the most recent views as to the administration of digestive ferments, pepsin and trypsin, and of the preparations of them which give the best results. These remedies are omitted on the ground that they are too well known to need discussion but even in this department knowledge does not stand still. In the section dealing with the ovary we do not find any reference to the views which

have been propounded as to the special function of the corpus luteum in forming an internal secretion. These, however, are but minor points and detract little from the general excellence of the book which deserves to be widely known and appreciated.

LIBRARY TABLE.

A Healthy Home and How to Keep It. By FLORENCE STACPOOLE, Diploma of the London Obstetrical Society. In two parts. London: Wells Gardner, Darton, and Co. Part I., pp. 83; Part II., pp. 88. Price 4*d*. each part.—It has been truly said that "the best wealth is health." The full value of health is too often not realised until it is lost. The authoress hopes that these little volumes, written after many years' experience as a lecturer on the "Care of the Health and the Laws of Hygiene" for the National Health Society, may prove of practical usefulness in helping parents. The headings of the chapters into which Miss Stacpoole divides her work show its scope. They are as follows: The House and How to Make it Healthy; Thrift, or How to Save Money and Have Comfort at Home; Temperance, How We can Help it Forward; Food and Its Uses; Prevention of Illness; Prevention of Consumption and Chest Complaints; Healthy Clothing; the Skin and Its Functions; and the Care of Babies. These little volumes contain sound advice from cover to cover and they are so cheap that they are within the reach of everyone. The print, paper, and general get-up are satisfactory.

Poultry Farming: Some Facts and Some Conclusions. By "Home Counties." London: John Murray. 1905. Pp. 186. Price 5*s*. net.—The author tells us that unless the poultry enthusiast is willing to abandon some of his cherished beliefs this book is not for him. To the would-be poultry farmer who is open to conviction it does address itself. The author does not court the goodwill of the poultry papers nor does he inspire the reader with dreams of poultry farming as popularly understood. He ventures to suggest, after pursuing the subject through no fewer than 16 chapters and an appendix, that poultry farming suffers from the drawback of not yet having been proved to pay. If by the agency of this volume only a few reasonable and well-intentioned folk are saved time, money, and strength the book will, says its author, have been written to good purpose. It is, however, the author's desire to give the warmest support to poultry keeping on certain lines indicated by experience and common sense and to the pleasant hobby of owning domestic fowls for its own sake. The book is not primarily intended to offer detailed instruction on poultry management but the large mass of practical data will prove of considerable value. As far as can be seen at present the future of poultry keeping will be chiefly in the hands of "the intelligent farmer's intelligent daughter." "A Poultry Farmer's Confession" is very instructive. The book is well got up and well illustrated and it will, we think, find its public.

Smoke Abatement: a Manual for the Use of Manufacturers, Inspectors, Medical Officers of Health, Engineers, and Others. By WILLIAM NICHOLSON, Chief Smoke Inspector to the Sheffield Corporation. With 59 illustrations. London: Charles Griffin and Co. 1905. Pp 256. Price 6*s*. net.—The author's object in this volume is to give a concise account of the smoke abatement movement and to indicate the means by which the smoke nuisance may be combated and, it is to be hoped, finally overcome. The unrestricted emissions of smoke result in serious harm and the author points out that, so far from being a necessary evil, it is one that is easily remediable and for the removal of which adequate legal machinery exists. Such emission of smoke is unsound economically and hygienically: economically because it means a direct waste of valuable fuel, and hygienically as it is a cause of lowered vitality in those obliged to breathe the vitiated atmosphere. Mr. Nicholson devotes three chapters to the legal aspects of the smoke nuisance and discusses the different enactments which have been made in our own and in other countries. He hopes that this book will be the means of directing increased attention to a question which has been neglected by many of those public authorities upon whom the duty of dealing with it devolves. The various questions involved are carefully considered and the volume may be regarded as an educational manual of distinct value.

A Nurse's Handbook of Obstetrics. By JOSEPH BROWN COOKE, M.D. Second edition, revised. London and Philadelphia: J. B. Lippincott and Co. 1905. Pp. 403. Price 9*s*. net.—The appearance of a second edition of this handbook for nurses in so short a time shows that it has met with appreciation by the class for whom it is intended. The author states that the book has been carefully revised and various additions have been made but it has not been thought necessary to alter the general plan of the work. The book has been slightly increased in size and the revision appears to have been carried out carefully and sufficiently, although some statements to which we took exception in the first edition still remain unaltered. The statement that eclampsia beginning after delivery is more dangerous than when it begins before or during the birth of the child is in direct contradiction to the experience of most writers on this subject. The book is, however, a good one of its class and we can thoroughly recommend it to nurses.

JOURNALS AND MAGAZINES.

Man.—In the November number of this journal the Rev. H. G. O. Kendall and Mr. J. Russell Larkby contribute articles on the controversy relative to eoliths and pseudo-eoliths, the point at issue being whether certain supposed flint implements are really of human manufacture or not. Writing on the Boni hunters of Jubaland, Captain R. E. Salkeld says that these people are subject to the Somalis in East Africa and that their great accomplishment is the making of poison for arrows. This poison is obtained from a tree which in Northern Somaliland is called Gadwayiyu. It grows commonly there, as well as in the hinterland of the Benadir and in the northern parts of Jubaland. A piece of the wood, after being barked, is shred into splinters; the bark and wood are then soaked in water for 12 hours and afterwards boiled for 12 hours, fresh water being constantly added. The final result is a thick, black, treacle-like substance which is put on the detachable head of the arrows behind the barb. A goat was killed in five minutes by inserting some of the substance in a small incision made in the shoulder. Captain Salkeld was informed that the symptoms were those of strychnine poisoning.

UNIVERSITY OF OXFORD: RADCLIFFE TRAVELLING FELLOWSHIP, 1906.—An examination for a Fellowship of the annual value of £200 and tenable for three years will be held in February, 1906, commencing on Tuesday, Feb. 27th. Candidates must have passed all the examinations required by the University for the degrees of B.A. and B.M. They must also have been placed in the first class in one of the public examinations of the University or have obtained some university prize or scholarship. Names should be sent into the Regius Professor of Medicine on or before Saturday, Feb. 10th. Further particulars are to be found in the *University Gazette* of Nov. 21st.

LONDON SCHOOL OF CLINICAL MEDICINE.—The following appointments have been made to this school, the formation of which we announced in our issue of Nov. 11th, p. 1421.—Medicine: Sir Dyce Duckworth, Dr. Frederick Taylor, Dr. J. Rose Bradford, Dr. R. T. Hewlett, and Dr. Guthrie Rankin. Surgery: Sir William Bennett, Mr. Mayo Robson, Mr. A. Carless, Mr. William Turner, and Mr. Lawrie H. McGavin. Diseases of the Eye: Mr. L. Vernon Cargill. Diseases of the Skin: Mr. Malcolm A. Morris. Diseases of the Throat, Nose, and Ear: Dr. StClair Thomson. Radiography: Dr. J. Mackenzie Davidson. Diseases of the Teeth: Mr. Kenneth W. Goadby.

THE LANCET.

LONDON: SATURDAY, DECEMBER 2, 1905.

The Session of the General Medical Council.

THE eighty-second session of the General Medical Council commenced upon Tuesday last, Nov. 28th, and at the first sitting a concise and business-like address from the President, which we publish in another column, outlined a definite scheme of work—work, it should be added, which is all designed carefully to conduce to the betterment of the medical profession generally or to the improvement of the educational standards of the medical student. There is at the present time an excellent opportunity for doing good work by the General Medical Council, for the time of the Council is not occupied, as some three or four years ago it was perpetually, by long-winded debates upon ancient subjects. There is no question, for example, before the Council at the present moment presenting the difficulties which accompanied all discussion upon legislation for the registration of midwives. When this reform was being debated in the Council it will be remembered that members of the Council, like members of the medical profession at large, were strictly divided in their views. Some were for legislation and some were against it, and, as both parties believed that their attitude was alike professionally correct and publicly expedient, both considered it a point of honour not to yield a foot. Much talk resulted, much time was wasted, and the inevitable legislation was not appreciably affected by efforts to arrive at the justice of the case. Incidentally the expense to the Council of these debates was very great, while other matters, perhaps of equal importance if not of equal intricacy, suffered some neglect. The memory of our readers will suggest to them many circumstances which have furnished to members of the Council occasion for fruitless talking. We need not recall them but we may congratulate the Council that no question of this kind is on the tapis now, so that there is opportunity for quiet work, for reasonable consideration of reports made to the main body by subcommittees; and possibly for some looking ahead. Hence the Council should be ready to assist the medical profession in obtaining the legislative amendments which all feel are badly needed, though it may imply a sanguine spirit to expect, in the present political position, that any medical reform will be promoted by Parliament.

To come to the immediate programme before the General Medical Council, we observe that in two directions the education of the student is especially to be cared for, and they are two of the most important possible directions. The maintenance of the standard of examination in the various branches of physic is one duty of the Council, as Dr. D. MACALISTER points out in his presidential address, but it is a no less important responsibility lying upon the Council to see that the course of study in each branch is sufficient. By Section 20 of the Medical Act of 1858 the Council is made distinctly liable for the maintenance of due facilities for medical study; the proper stringency of the examinations to be undergone by the student is one thing, and proper provision for his education is another, but the superintendence of both rests with the Council. At the last meeting of the Council Sir JOHN WILLIAMS suggested that the accustomed routine of the medical student in practical midwifery should be reconsidered with a view to its possible improvement. There is no doubt that here Sir JOHN WILLIAMS, himself a teacher of great practical experience, put his finger upon a distinctly weak point in the curriculum of the medical student of to-day. At certain of the schools of medicine the instruction given in practical midwifery is not practical and some would doubt whether it amounted to instruction at all. We do not think that this neglect of a highly important subject—perhaps the most important subject from the general practitioners' point of view that the medical aspirant has to study—is really widespread, but we say this under possible correction of the Council, which now has in its possession all the facts. For on the motion of Sir JOHN WILLIAMS a committee of inquiry was constituted at the last summer session of the Council, and, in order to ascertain the real state of the case, the President of the Council addressed a circular letter to the schools connected with the several licensing bodies asking for replies to a category of questions which were drawn up with a view to expose the situation thoroughly. Answers to these questions have now been received and classified by the Registrar of the Council, and the digest when placed before the members of the Council may be expected to receive their close consideration. That the teaching of practical midwifery should be really practical is a necessity, at the same time the difficulties with which the teachers are confronted are obvious. Parturition is not a pathological act, and demonstration to the student of the methods for conducting a labour cannot be carried on in the way, say, that the treatment of a fracture can be made plain to him in the wards of a hospital. The fact that instruction in midwifery, whether called practical or not, cannot be clinical to the extent that instruction in other branches of medicine and surgery may be clinical, has, however, been made too much of, and this tendency will, we are sure, be noted by the Council. It is also promised that the Council will make an inquiry into the better provision for the teaching of operative surgery, and next only to practical midwifery, operative surgery has now become important to the medical student. The Anatomy Acts Committee will meet during the session to receive reports as to the steps taken, and we hope to learn that it will become easier and cheaper than has hitherto been the case for the student to take out a full course of operative surgery. We are not, however, very expectant of immediate improvement, for the shortage in anatomical subjects, which has occasionally been used as an excuse for slackness on the part of both teachers and taught, depends upon complex social conditions not easily susceptible of alteration.

The *personnel* of the Council, before which these suggestive reports are to be laid, has been considerably altered since last session. The ex-President, Sir WILLIAM TURNER, has retired from the representation of the University of

Edinburgh and his place is taken by Sir THOMAS FRASER, professor of materia medica and clinical medicine in that University. Sir WILLIAM TURNER'S unrivalled experience of educational questions makes his absence from the Council a real loss to that body, although he is replaced by so well-known a physician and so distinguished a man of science as Sir THOMAS FRASER. The University of Birmingham and the University of Sheffield are now respectively represented by Dr. ROBERT SAUNDBY, professor of medicine at Birmingham, and Dr. WILLIAM T. COCKING, dean of the medical faculty at Sheffield. Dr. SAUNDBY is well known as an authority upon medical ethics and his addition to the Council will considerably strengthen that body in this direction and increase the confidence of the medical profession, as a whole, in the disciplinary decisions of the Council. Dr. SAUNDBY, we are glad to say, was immediately placed by the Council upon the Penal Clauses Committee. Dr. COCKING brings to the Council the experience in organisation gained by his participation in the constructive work which has resulted in the development of the medical faculty of the University of Sheffield, and the circumstances attending his seat on the Council board should be kept steadily before the notice of the public. The University of Sheffield has to make itself responsible for the fees payable to its dean and representative, or the University would apparently go without a voice at the General Medical Council. Could anything bring home to the public more clearly that it is disgraceful that no adequate Government grant has been obtained to supplement the funds of the General Medical Council? The work done by the General Medical Council is for the public good. The Medical Acts expressly (and properly) have been designed for the protection of the public; but the body charged with the supervision of the medical profession under those Acts is perpetually hampered by poverty and now makes public confession of being unable to pay all its members.

The Medical Inspection and Feeding of School Children.

WE have recently referred on more than one occasion to the importance of thorough and systematic medical examination of the children attending public elementary schools, not only with a view to the detection and prevention of infectious ailments but also in order that mental and physical defects of comparatively slight degree, which may nevertheless seriously hamper the education of the child, may be discovered and as far as possible treated. We are glad to see evidence that the need for such medical examination is being realised by many educational authorities, and we are thus encouraged to hope that before long it will be established as a necessary part of our school system. A blue-book lately published contains the report of an Inter-departmental Committee on the medical inspection and feeding of children attending the public elementary schools, and from it we gather that 48 educational authorities already provide for medical inspection. As the figures supplied by the report show that the cost of this does not amount to more than a small fraction of a penny in the pound added to the rates, it seems likely that many others will be encouraged to follow the example thus set. The experience already gained will further be valuable in affording guidance as to the exact duties which medical inspectors should be called upon to perform. No uniformity appears to prevail at present in this respect. The obvious importance of eliminating infectious diseases tends to overshadow, in the minds of the laity at all events, the other indispensable duties to which we have alluded. It also results in the appointment in the majority of instances of the medical officer of health of the district to the post of medical inspector of schools. This arrangement is clearly convenient in many cases but it must be recognised that the inspecting officer should be selected for his capacity to perform all the duties expected of him, and these involve a knowledge of the physical and mental peculiarities of children much more extensive than can be looked for in members of the medical profession who have not received special training in this direction. If it be finally determined by universal custom that medical officers of health are the right officials to carry out the duties of school inspection, it will be necessary to include the hygiene of children—using the word hygiene in its widest sense as embracing all that pertains to health and well-being—in the qualifications of candidates for such posts. The greatest difficulty is presented by the problem of detecting and classifying slight mental defects and most exemplary tact and skill are required for this purpose. Another difficulty lies in determining, in the case of children suffering from no distinct illness but who are yet physically feeble, whether they are fitted to go to school with profit to themselves. All who have experience of the treatment of the children of the poor in London are brought constantly into contact with cases of this nature, in which the little patients clearly suffer from school conditions and only regain their health when a period of withdrawal from school has been ordered.

But it is not only the detection of defects that is of importance: this is of comparatively small service unless provision is made for their treatment when discovered. At present this duty is beyond the province of school medical inspectors and there are obvious difficulties in intrusting them with such functions. In the first place parents who can afford to pay for their children's medical needs should be expected to bear this expense; and in the second place friction might arise between the medical inspector and his professional colleagues over any attempt to supply gratuitous medical attendance to the children. Fortunately, in the large majority of instances parents realise their duties sufficiently to see that their children are treated for any troubles which are pointed out by the medical man or by the teachers, while those children whose parents are too poor to pay for medical attendance can always get gratuitous relief. A few cases remain in which through carelessness or indifference the parents neglect to avail themselves of medical aid when the need for it has been pointed out to them. It should not be impossible to bring the law to bear upon these offenders. Failure to call in medical aid is clearly a form of cruelty or neglect and is recognised as such in the case of death of the child. The same principle should be applied to minor ailments as obtains in dangerous conditions and parents who refuse to have their children treated for pediculosis or ringworm

should be liable to penalties of suitable degree. If the law is at present inadequate to enable proceedings to be taken the requisite statutory provisions should be enacted at the earliest opportunity.

Closely connected with the subject of medical treatment of school children is the question of supplying them with the food necessary to fit them to profit by the instruction given. As to the mode of providing such food we are met by two arguments of apparently equal weight and of contradictory tendency. On the one hand, it may be said that if the State compels children to receive certain instruction it is its duty to see that the children are provided with all that is requisite to enable them to receive it without detriment to their health. On the other hand, it may be urged that it is the parents' duty to supply their children with food and that the fact that the State has relieved them of the expense of paying for their education affords no reason why it should go still further and supply food also. It does not lie within our province to reconcile these conflicting social principles. Here we are only concerned to point out the absolute necessity on grounds of health that the children should receive suitable food while they are attending school, if the physique of the coming race is not to suffer from the attempt to improve its mental capacities. Somehow or other, children who are called upon to undergo definite mental exertion must be supplied with the fuel necessary for this expenditure of energy. At present such attempts as are made to supply meals to school children needing them are made by voluntary agencies, and this is perhaps the most satisfactory arrangement if the supply of aid is adequate. The selection of the recipients is not an easy matter. Undoubtedly the teachers are the persons best acquainted with the conditions of the children, but to leave it to the teachers to distribute the meals at once gives rise to charges of favouritism and the plan is inadmissible for this reason. Nevertheless, the teachers must be looked to for guidance in the first place, as they can readily point out *primâ-facie* cases of want. Some scheme of visitation of the homes must then be carried out in order that parents who are in real want may be distinguished from the vicious or improvident, and here again a difficulty arises. If the children are starved owing to their parents spending all the available money on drink, then to supply the children with food will merely leave the parents more to spend in gratifying their vice, while, on the other hand, if the children be refused food they will be suffering for faults not their own. Against parents of this kind the law ought to provide a remedy—if necessary by taking the children from their control and placing them in special homes. Good results have followed the attempt to organise a system of providing free or cheap meals when carried out in conjunction with the relieving officers and it is in the direction of coöperation with the Poor-law authorities that all such schemes should be worked. It cannot be doubted that much sentimental exaggeration has been indulged in as to the number of children who are in need of food. Nevertheless, the evil exists to some extent and must be remedied. Health is of more importance than knowledge, and if the acquirement of the latter is insisted upon means must be found for safeguarding the former.

Royal College of Surgeons of England.

THE twenty-first annual meeting of the Fellows and Members of the Royal College of Surgeons of England differed in no essential respect from most of the 20 meetings which preceded it, for it accomplished nothing. Differences, indeed, there were. Instead of the hundreds of Members who, on some previous occasions, have thronged the area of the theatre and its gallery, there were only 34 Members who took the little trouble needed to attend on one day in the year for an hour or so at a meeting of the body corporate of their own College. Instead of the motions, to which we are well accustomed, claiming for the Members the right to elect a part of the Council, we find a protest against the statement of the Council that two of the resolutions carried at the last annual meeting required no comment. Who that hopes for the reform of the College and remembers the zeal, the enthusiasm, and the energy of 1895 and many later years, can regard without a pang the spectacle of such a meeting as that of this year. Gone are the eloquence and the enthusiasm of the early days, and in their place we find accusations which many true supporters of reform will regard as querulous and arguments which they will find inefficient.

No one who is acquainted with the pages of THE LANCET can doubt our zeal in the cause of the reform of the Royal College of Surgeons of England. From the position taken up by us at the beginning we have never deviated. We have always endeavoured to support the reform party and our advice has ever been, in our opinion, conducive to that end. We acknowledge that in many points connected with the reform of the College others may hold a different opinion, though fully and conscientiously working for reform. On one point, however, there is no room for doubt or for two opinions. Before there is the slightest chance of reform of the College the Members must be, and must show that they are, thoroughly in earnest in the demands which they make. There are some 16,000 Members of the College and yet no more than 34 would, or could, take the trouble to attend the annual meeting. This miserable fraction, less than the four-hundredth part of the total Membership, cannot represent all the Members who are supposed to be clamouring for their rights. 34 came, but 400 times that number stayed away. The first essential for the attainment of reform is that the Members should attend in large numbers at the annual meetings. We know well that many hundreds of the Members live too far from London to attend, and that many others are unable to come for other reasons; but, even after making full allowance for all these, enough should be left to fill the theatre of the College many times over; and yet only 34 appear. If the demand for reform is indeed confined to this handful of Members there is not the slightest chance of obtaining the franchise, and, indeed, most of the arguments in favour of reform would lose much of their weight. It is not sufficient that the Members have a moral claim to share in the government of their College; it must also be shown that the Members are able and willing to exercise the duties to be intrusted to them. It may be said that the uselessness of the efforts made during the last 20 years has disheartened the supporters of the

reform movement, and this may be so. But to be disheartened by failure does not show the spirit of the true reformer. Opposition and failure will but serve to strengthen his determination to obtain his aim and as the years go by he will ever strive more and more to win the prize which he earnestly desires. Have, indeed, all these years been without fruit? The gains are scanty but the long struggle has not entirely been without reward. Even the right of meeting, restricted as it is, is a great gain; the taking of the votes of the Fellows, adverse though it proved to be, was at least a good precedent, and the numbers at that voting revealed among the Fellows a great proportion who sympathised with the aspirations of the Members. Even the sending of the report regularly to those Members who register their names as wishing for it is a gain, for it places the Fellows and the Members on a level in this matter. The recording in the report of the names of those Members who have died in the preceding academical year is another small gain. All these gains are truly of but little moment, but they are gains and they should stimulate the reformers to stronger and more prolonged efforts. The hope of success should ever cheer them on and success is sure to come sooner or later. To obtain reform every annual meeting should see an agenda paper filled with motions relating to College affairs. The obtaining of the franchise is but one of many reforms, and the attainment of any one of the needed amendments in the College will be a definite gain. Let the Members show that they are capable of appreciating the importance of College affairs, of the great work in education and in examination that the College has to carry out. When it is seen that the Members are anxious not merely for the improvement of their own position but for the advancement of surgery and the raising of the standard of knowledge, then it will be seen that much of the opposition apparently existing at present to their efforts will melt away. Many of the Fellows resist reform not from any selfish wish to restrict the franchise but from a fear that the granting of voting powers to the Members will be inimical to the best interests of surgical education itself. As these Fellows are acting from a firm conviction of duty their opposition will cease as soon as the baselessness of their fears is apparent to them.

Above all the Members must take care not to ask too much. Unreasonable demands can be refused with ease. For a man to ask for more than he is entitled to will often lead to his failing to get even as much as he deserves. To ask for absolute equality with the Fellows in voting powers will make it impossible for the Members to obtain any voting power at all. In an election on such lines the votes of the Fellows would be utterly swamped. At the present time it would be reasonable for the Members to ask that they should be able to be represented on the Council by electing a certain proportion of the Council, perhaps an eighth or a sixth. Were this concession made the Members would have an active voice in the affairs of the College. The rights and the wants of the general practitioner could be laid before the Council as they cannot be at present, and the needs of the great body of the profession would no longer be in danger of escaping recognition. Temperate demands for representation such as this would surely in time be granted. The value of the methods of the importunate widow must be recognised. To retire in dudgeon because of the loss of a motion is not the way to obtain success in so arduous a struggle as that in which the Members are now engaged. A year must elapse before the next annual meeting; let the Members in the interval organise their forces, let them prepare their work so that when the next meeting comes we may have an assembly of Members worthy of the cause of reform and an agenda paper worthy of the meeting. To feel confident of success is a valuable asset in achieving it and that there is room for confidence we cannot doubt.

Annotations.

"Ne quid nimis."

THE PURITY OF ETHYL CHLORIDE.

THE purity of a substance used for anæsthetic purposes is, of course, of first importance. During the process of its manufacture certain bye-products may be formed which, if care is not taken, may find their way into the product, while the same may be said, especially if they are volatile, of the materials concerned in the formation of the anæsthetic. Such impurities may or may not have a very unfavourable effect upon the patient who is subjected to the action of the anæsthetic but in any case it is most desirable that only the pure agent should be used. Amongst anæsthetic agents which have been re-introduced into practice comparatively recently is ethyl chloride, the use of which both in general and local anæsthesia has been mentioned favourably by many medical men. Occasionally, however, unsatisfactory results have been reported. It may be administered by itself for brief operations or followed by some other anæsthetic. Ethyl chloride promises to replace nitrous oxide as a preliminary anæsthetic agent in operations requiring the use of an anæsthetic. It is certainly very convenient to handle, as it readily condenses to the liquid form and as readily gives off vapour again. The boiling point of pure ethyl chloride is 12·5° C. It should be free from water, from foreign chlorides, from acids, from aldehydes, from ether or alcohol, and from organo-metallic substances. Ethyl chloride is commonly prepared by acting upon ethyl alcohol with hydrochloric acid gas, the yield being increased by the addition of zinc chloride which probably acts by abstracting water from the alcohol. This process will suggest the kind of impurities which are likely to be found in badly prepared ethyl chloride. Our attention has been called to the fact that ethyl chloride is sold on the market without bearing a label upon the tube containing it. In the event, therefore, of an unbranded sample of ethyl chloride giving unsatisfactory results during its employment for anæsthetic purposes there probably would be a difficulty in tracing it to its origin with the view of preventing the possibility of further mischief being done. There is, in fact, no security in unbranded samples of ethyl chloride and it is obviously desirable that only those bearing the name of the agent or manufacturer should be employed. We found on inquiry that there were seven "makes" of ethyl chloride to be obtained in London, of which, as will be seen in

the table below, five proved to be branded properly and two were without labels. In the table also will be found the results of our examination of these specimens.

Sample.	Boiling point.	Impurities.	Observations.
1. Kélène. R. W. Greeff and Co., 20, Eastcheap, E.C.	12·5° C.	None; no acid.	Pure ethyl chloride.
2. Duncan, Flockhart and Co., 143, Farringdon-road, E.C.	12·5° C.	,,	,,
3. Hedley and Co., 92, Harrow-road, Leytonstone, N.E.	12·5° C.	,,	,,
B. Kühn and Co., 16, Rood-lane, E.C.	12·5° C.	,,	,,
5. Francis Lepper, Limited, 56, Gt. Marlborough-street, W.	13·0° C.	Some residue and tarry smell.	Traces of impurity.
6. Unbranded...	12·5° C.	None; no acid.	Pure ethyl chloride.
7. Unbranded...	13·0° C.	Residue with tarry smell; aldehydes marked.	Traces of impurity.

It should be stated that sample No. 5 was not intended apparently for general anæsthesia; there was no instruction, however, to that effect on the label but on another tube from the same firm the label contained the words "for local anæsthesia," and in that case the presence of "traces of impurity" is probably not a serious matter. In one instance the boiling point of the sample proved to be −0·5° C., a mixture of methyl chloride and ethyl chloride (used it may be with advantage for local anæsthesia) having been supplied as pure ethyl chloride. Since this mixture produces on evaporation a more intense cold than ethyl chloride this mistake, in the case of general anæsthesia at any rate, might lead to unexpected and possibly mischievous results. On the whole, however, it is clear that the anæsthetist has the choice of several good makers or agents who sell ethyl chloride of undoubted purity and of such quality as should only be used for general anæsthetic purposes unless, of course, the application of a definite mixture is designed. Ethyloform, for example (B. Kühn), is a mixture of 45 per cent. ethyl chloride, 45 per cent. methyl chloride, and 10 per cent. ethyl bromide, the last drug being regarded to act as a sedative.

METROPOLITAN HOSPITAL SUNDAY FUND.

A MEETING of this Fund was held on Nov. 28th at the Mansion House, London, under the presidency of the Lord Mayor. There was a large gathering and amongst those present were the Ven. Archdeacon of London, Sir H. Burdett, Mr. Charles Cheston, Sir Dyce Duckworth, Canon Fleming, Dr. J. G. Glover, Mr. George Herring, Mr. Sydney Holland, Prebendary Ingram, Sir E. Durning Lawrence, Mr. F. H. Norman, Rev. E. H. Pearce, Sir J. T. Ritchie, Sir Joseph Savory, Mr. Wakley, Mr. Deputy Wallace, and Mr. Alfred Willett. At the commencement of the proceedings the Archdeacon of London called attention to the report of the secretary, Sir Edmund Hay Currie, on district nursing associations and moved a proposition to the effect that a certain sum of money should be set aside for the purpose of a grant to these institutions. This was seconded by Mr. Deputy Wallace and carried unanimously. The institutions concerned are Queen Victoria's Jubilee Institute for Nurses, the North London Nursing Association, and the Bible Women's Association of Trained Nurses. Of course, this resolution of the Council only affirms a principle which must be confirmed at the annual general meeting of the Fund to be held on Dec. 18th next. On the proposition of Sir Henry Burdett it was decided that the amount to be thus set aside should not exceed 5 per cent. of the total sum collected by the Fund. Mr. Charles Cheston, the honorary solicitor to the Fund, proposed the following motions, which were seconded and carried:—

1. That this council cordially agrees with paragraph 27 of the report of Sir Edward Fry's committee appointed to inquire into the financial relations between the hospitals and medical schools, of which the following is an extract: "For the future the distinction between the hospital and the school should in every case be drawn, not only definitely and exactly, but with such clearness that it may be understood by the general public and so that no question may arise as to the destination and application of moneys contributed, whether by the King's Fund or from any other source."
2. That no grant shall be made from the Metropolitan Hospital Sunday Fund to any hospital which fails to completely comply with the above-named recommendation.
3. That in estimating the amount to be contributed to the funds of any hospital from the Hospital Sunday Fund no moneys paid or subscribed during the preceding year towards the school attached to any hospital shall be taken into account.

The following gentlemen were proposed to fill vacancies on the council: The Ven. Archdeacon of Middlesex, the Rev. J. H. Campbell, Sir Frederick Cooke, Sir Frederick Treves, and the Rev. Charles Brown. June 17th, 1906, was suggested as the date of the next Hospital Sunday, and a vote of thanks to the Lord Mayor terminated the proceedings. The report of the council for the year 1905, which will be submitted to the annual general meeting, states that the thirty-third year of collecting the Fund has resulted in a total of £78,379. The collections in the various places of worship amounted to £48,954, the collection at St. Paul's Cathedral heading the list with £5518. Mr. George Herring's donation amounted to £12,400, and the collection made by the London commercial travellers amounted to £307. This latter sum was added to the collection at St. Paul's and therefore is included in the total collected in places of worship to which amount Mr. George Herring has, as on previous occasions, generously added one-fourth. It is satisfactory to note that with the exception of the year 1903, when the King and Queen visited St. Paul's Cathedral, the year just closing is a record one as regards the collections in places of worship.

THE INTERNATIONAL MOTOR EXHIBITION AT OLYMPIA, LONDON.

THE fourth International Motor Exhibition promoted at Olympia by the Society of Motor Manufacturers and Traders came to an end on Saturday last, Nov. 25th, and was a great success in that it afforded a proof of the rapid strides which are being made by every branch of the industry, especially in this country. The number of exhibitors was considerably larger on this than on any previous occasion and the crowded state of the building during the whole period of the exhibition was a sufficient indication of the general recognition that motor propulsion has taken a definite place among the progressive improvements of civilisation. The exhibition was adequately representative of all that was best in automobile manufacture and invention, sent in from all countries, and its most gratifying feature was the advance which has been made by the British manufacturer. The British manufacturer can now compete successfully with his foreign rival in the supply of motor vehicles of every description, with the exception, perhaps, of the more expensive and elaborate pleasure cars. In one particular direction, indeed, the British manufacturer has unquestionably set the fashion to the continental manufacturer instead of (as used to be the case) following his lead. The six-cylinder engine designed by Mr. Napier, and at first ignored on the continent, is now copied by some of the best foreign makers, and it is, as a matter of fact, mainly in the direction of the multiplication of cylinders that distinct advance in the perfection of the explosive engine can be recorded. The exhibition has not produced any far-reaching revolution in the method of propulsion, though science may at any moment bring about such a revolution by the discovery of improved methods of storing electricity or possibly by

bringing under control the elastic force which must reside in liquid air or other liquefied or even solidified gases. True, the six-cylinder engine has even thus early been succeeded by the Rolls-Royce eight-cylinder, but this is a matter of development rather than of constructive change. A solution of the speed-limit problem is to be attempted with the eight-cylinder engine, for a car is being manufactured for a well-known motorist with one of these engines specially designed to travel on the flat at a speed not exceeding 20 miles an hour and to ascend hills at not less than this speed without changing gear. On this particular car only two speeds forward and a reverse are provided. Magneto-ignition is making considerable headway and the prediction that it will as surely displace the coil and accumulator as the spray has the surface carburettor seems to be a correct one. Improvements in minor details were much in evidence but were not of any striking character. Of accessories of all descriptions there was an extensive display and the battle of the tyres is as undecided now as it was years ago. The pneumatic tyre, with its chief drawback from the point of view of the medical practitioner—its liability to puncture at a critical moment—still holds the field in immense numerical superiority to its competitors and the only contrivance in any way seriously to challenge its position at the present seems to be the Hallé spring wheel, of which more will undoubtedly be heard. Of the large number of cars on exhibition it is not possible, of course, to speak in detail in a medical journal. There was an immense variety of cars at the exhibition, ranging in price from a little over £100 to considerably over £1000. There were a few cars specially put forward as designed for the medical profession, and these, with one or two cars not shown at Olympia, making similar claims, we hope to refer to in a subsequent issue. Prices have practically remained stationary, a tendency to a fall in the higher priced cars being insignificant. There are at least a dozen firms who can supply a serviceable car at from £200 to £300 and there are a few who will supply one at a lower figure than £200. We notice that not a single effort appears to have been made by any manufacturer to grapple with the dust problem; at any rate, there was no evidence of such effort. The manufacturers take up the position that any move in this direction must come from those responsible for the making and upkeep of the roads and perhaps they are in the main right. But the dust raised by motor-cars constitutes one of the chief objections to their use and all interested in them should do their utmost to mitigate the evil.

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

Mr. T. Barclay Cockerton, Local Government Board auditor, resumed his inquiry on Tuesday last at the offices of the London County Council into the application of the British Medical Association, as ratepayers, to disallow certain payments made by Mr. Troutbeck, the coroner for Westminster and South-West London, to Dr. L. Freyberger for making post-mortem examinations and giving evidence at inquests. Mr. W. C. Ryde, who represented the London County Council, the body which is supposed to approve of Mr. Troutbeck's methods, argued that Mr. Troutbeck had not exceeded his discretion as coroner, and had not contravened the Coroners Act by giving the post-mortem examinations in his district almost exclusively to Dr. Freyberger. Mr. Bodkin, who appeared for the British Medical Association, quoted the opinion of the Lord Chancellor, who "is not in favour of the coroner's practice" though he does not find "that there is such a case as would enable him to exercise his only jurisdiction in removing the coroner." Mr. Bodkin took exactly the same view of the Coroners Act, 1887, that we have taken in our numerous articles under the heading of "The Medical Man, the Coroner, and the Pathologist," for he pointed out that a pathologist resident in Hampstead (Dr. Freyberger's registered address is in the Regent's Park-road) could not be described as "a legally qualified practitioner who is at the time in actual practice in or near the place where the death happened" when the death happened in South-West London. The crux of the case is whether a definite appointment has been created by Mr. Troutbeck in favour of Dr. Freyberger, or whether it is mere chance that Dr. Freyberger has received from Mr. Troutbeck £1767 of public money in 22 months for the performance of post-mortem examinations and the giving of medical evidence. The figures are Mr. Bodkin's, but all our readers know that Mr. Troutbeck, in defiance of medical opinion, and apparently in opposition to the Lord Chancellor's view, has given the medical work in connexion with his office as coroner almost exclusively to Dr. Freyberger. The inquiry having concluded the auditor said that he would reserve his judgment, the case being of public importance and also of considerable difficulty.—At a recent inquest at Westminster the policy adopted by Mr. Troutbeck in assigning all post-mortem examinations to Dr. L. Freyberger was again illustrated. It will be remembered that the suggestion has been put forward that his employment is necessary in complicated and obscure cases in order to obtain satisfactory evidence as to the cause of death. In the particular instance referred to the deceased was found by a rent collector lying dead with a bottle and a tumbler beside him, each containing a small quantity of cyanide of potassium. The police, who were called in at once, summoned their divisional surgeon, Dr. Percy J. Edmunds, who took possession of the poison, prudently considering that it ought to be in the keeping of one fully aware of its properties and not in that of a policeman. Apparently Mr. Troutbeck held the opinion that Dr. Edmunds should not have done this and perhaps technically he had no right to do so, particularly as the coroner was pretty certain to follow his usual course with regard to the evidence at the inquest. It seems unnecessary, however, to point out that in a case of poisoning the question whether the deceased committed suicide may depend quite as much upon what is observed by a medical man summoned immediately to see the body as upon post-mortem examination, and also that a divisional surgeon of the Metropolitan Police, selected for his position on account of his ascertained qualifications, would hardly be likely to find a case such as that described beyond the range of his attainments as a pathologist.

HEALTH IN THE TROPICS.

ON Nov. 22nd Dr. Charles F. Harford, physician to the Church Missionary Society, gave a lecture in the anatomical theatre of the University of Cambridge under the presidency of the Master of Trinity and in the presence of various professors in the Faculty of Medicine. Maps illustrating the geographical distribution of the different tropical diseases were shown. After alluding to the Schools of Tropical Medicine in London and Liverpool and the part which they, as well as the University of Cambridge, played in making known the causes of tropical diseases, Dr. Harford spoke of Livingstone College, of which he is the principal. Micro-photographs of parasites were shown and the lecturer then instanced the enormous drop which has occurred on the Suez Canal in the frequency of malaria, a drop which is almost entirely due to the thorough carrying out of operations directed against mosquitos. He advocated that all medical men destined for service abroad should be trained in tropical medicine and added that missionaries and others going to tropical climates

should be trained in the elements of tropical hygiene and that the principles of tropical hygiene should be taught in all elementary schools of our tropical dependencies. We quite agree with Dr. Harford, but there will always be a certain proportion of even educated men who although they have been taught simple rules for hygiene will not believe them, as was the case with the American colony in Panama to which we referred in our issue of Nov. 25th. As regards mosquitos the use of a net as a protection against the stings of these pests is older than the time of Herodotus, who mentions that nets for this purpose were in common use in Egypt (Euterpe). Moreover, although the definite connexion between mosquitos and malaria has only been quite recently determined, yet it was known, by at all events the middle of the last century, that the use of a mosquito net "kept out malaria." And yet we fancy many of the early school of missionaries looked upon the use of a net, or indeed of other means, of preserving their health as something just as unsuitable for soldiers in the field of spiritual warfare as Horace considered the *conopium* unsuitable for the carnal warrior,

> Interque signa turpe militaria
> Sol aspicit conopium,

though probably in this case the poet was referring to what the *conopium* concealed. Nowadays, however, it is recognised that for a worker in the spiritual vineyard to take means to preserve his health is to do just as good or even better work than the practice of the extreme asceticism or the fatalistic view which cut off so many valuable lives in their prime.

EPSOM COLLEGE.

WE print on p. 1641 a letter from Sir Constantine Holman, the treasurer of Epsom College, appealing for funds on behalf of the foundation attached to the school. As our readers probably know, 50 boys, the sons of medical men in poor circumstances, are educated, clothed, and boarded free of charge, and 50 pensioners, who are either aged medical men or the widows of medical men, receive small annuities. In consequence of a breakdown in the drainage system which was constructed about 50 years ago, a sum of over £6000 has had to be expended in putting the sanitary system into order. A public school is expected to be especially well drained and Epsom College is governed by a council on which are several well-known members of the medical profession. Nothing, therefore, has been spared to render the drainage of the buildings perfect in every way, while the whole of the work has been carried out under the direction of a sanitary expert, Mr. Reginald G. Hansell, with the full approval of the local sanitary authorities. Though the sum expended is large the council was right to face the difficulty boldly. In order to repay loans from the bankers and to meet applications from the contractors a part of the small general purposes fund has had to be sold, with the result that the income from invested funds will in the future be materially reduced. Since the pensioners and foundation scholars are almost entirely maintained out of voluntary contributions the treasurer earnestly appeals for increased support, more especially for annual subscriptions, and he frankly states that the present numbers of beneficiaries cannot be kept up unless more support is received. That a reduction in the number of either pensioners or foundation scholars would inflict hardship may be gathered from the statement that there are already on the books of the institution 14 candidates for pensionerships and 23 candidates for foundation scholarships, in spite of the fact that six pensioners and 11 foundationers were elected in June last, while the number of applications is sure to be swelled during the next few months. Since the opinion is sometimes expressed that this foundation is a "southern charity" and should not look to the north for pecuniary support, it is well to notice that at the last election there were candidates residing in Bolton and Blackburn, in Wales and the Western counties, and in various parts of Scotland and Ireland, while of the present pensioners some reside in all parts of Great Britain, some in France, and some in South Africa and Western Australia. It is to be hoped that the medical profession generally will come to the help of the council at the present time. The need for funds is not, as in the case of so many charities, simply chronic poverty, but is of an exceptional character, while the cause is one for which the governing body is not in the least responsible. We have before now pointed out that the financial position of Epsom College could be made secure by a subscription of 5s. per annum from every member of the medical profession. Those who have put off from time to time the pleasure of contributing to the funds of the foundation of Epsom College could hardly find a more suitable occasion to commence subscribing than the present, for Old Epsomians have just celebrated the jubilee of the opening of the College. Those wishing for further particulars regarding the work of the institution can obtain copies of the council's annual report on application to the secretary, Mr. J. B. Lamb, at the office, 37, Soho-square, London, W., where contributions will be gratefully received; or they may be sent to the treasurer, Sir Constantine Holman, M.D., 26, Gloucester-place, Portman-square, London, W.

BILATERAL PARALYSIS AT BIRTH OF THE LOWER ARM TYPE.

PARALYSIS in the child after difficult labour is generally of the upper arm type. Occasionally paralysis of the lower arm type is seen but it usually is the remains of a total paralysis of the arm. Cases of bilateral paralysis of the lower arm type are very rare. In the *Boston Medical and Surgical Journal* of Oct. 19th Dr. J. J. Thomas has reported two cases. In the first, a boy, aged seven months, was taken to hospital on Dec. 7th, 1902. He was born after difficult labour, in which the face presented with the chin posterior. Under chloroform an attempt was made to flex the head but failed. Traction with the forceps also failed; so did an attempt at version, in consequence of contraction of the uterus. During the latter attempt, however, the head was pushed back a little and with difficulty the presentation was converted into a cranial one. The labour then proceeded normally but on delivery paralysis of the arms was observed. On examination the forearms tapered to the wrists, probably from muscular atrophy, and the hands hung flaccidly, the wrist-joints being lax. There were a tendency to extension of the wrist-joints and no power of prehension. The arms were held abducted almost at a right angle with the body. The forearms were held flexed on the arms and passive extension at the elbow was resisted. The only voluntary movement of the upper limbs seemed to be elevation of the arms and flexion of the forearms. On Feb. 4th, 1903, there were found slight movement in all the fingers of the left hand except the middle finger, and movement in the thumb and index finger of the right hand. The hands were held extended and deviated towards the ulnar side; the fingers were extended at the proximal phalanges and flexed at the terminal ones. There was well-marked atrophy of the muscles of the forearms, especially of the flexors, and of the muscles of the thenar and hypothenar eminence. The biceps, deltoid, and supinator longus of both arms responded well to faradism, while the triceps and all the muscles of the forearms gave no response. In May, 1905, the paralysis persisted except that the grasp was stronger, which seemed to be due to recovery of power in the long flexors. Dr. Thomas reports

another case and refers to one recorded previously by Jolly. He thinks that the lesion must be chiefly one of the seventh cervical root. The eighth cervical and first thoracic roots must be also involved, though in none of the cases were there symptoms of injury of sympathetic fibres in the latter root. In all three cases the face or chin presented at birth. This confirms the view advanced by Jolly nearly ten years ago that the injury was due to stretching of the nerve roots from over-extension of the head. Either directly by this stretching or by pressure of the clavicle against the first rib the lower part of the brachial plexus was injured, but far enough from the spinal cord for the ocular fibres of the sympathetic in the first thoracic root to escape.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

A MEETING of this society was held on Nov. 28th, Sir R. Douglas Powell, the President, being in the chair. Three papers were read: (1) On the General Principles of Therapeutic Inoculation by Bacterial Vaccines as applied to the Treatment of Tuberculous Infection, by Professor A. E. Wright; (2) a Study of Some Points in Relation to the Administration of Tuberculin (TR) controlled by Observations of the Opsonic Index in Pulmonary Tuberculosis, by Dr. David Lawson and Dr. Ian S. Stewart; and (3) a paper on the Treatment of Tuberculosis by Tuberculin, by Dr. W. Bulloch. We publish the first part of Dr. Wright's paper dealing with localised tuberculous infection this week and Dr. Bulloch's paper. The paper by Dr. Lawson and Dr. Stewart will appear in our next issue. The discussion will be continued at the next meeting of the society.

THE STERILISATION OF MILK.

THE International Dairy Congress which met within the last few days at the Collège de France devoted special attention to processes for the preservation of milk. During a sitting presided over by Professor Brouardel, assisted by M. Bordas and M. Kohn-Abrest, a long discussion was entered into regarding the best method of sterilising milk intended for consumption. All those assisting at the congress (including the director of the sanitary service under the control of the police authorities) recognised the fact that the pasteurisation of milk was efficacious solely when effected within a certain period, which varied according to the physico-chemical condition of the medium treated. M. Michel, a farmer of Tomblaine-Nancy, described a process of sterilisation with which he has obtained excellent results. This gentleman had been intrusted with the sterilisation of the milk distributed by the Œuvre du Bon Lait, a society started by the Nancy medical practitioners with a view to check the mortality amongst the children of the poor which attains alarming proportions during the summer. First of all ordinary sterilisation was tried; this consisted in bringing the milk up to a temperature of 100° C. This process, however, is by no means perfect; for instance, it often happens that milk sterilised at 100° C. is found to have coagulated at the end of two days when it has been necessary to transport it for any distance. M. Michel then employed the following system: The bottles are closed by means of a tin capsule, provided at the top with a small chimney-like aperture which is left open during the first part of the sterilising process. This part of the process has for its object to drive the air and oxygen out of the milk. This causes the removal of those very elements which, it is stated, facilitate chemical change, and the milk is thus free from that brownish tint and "boiled" taste which are characteristic of ordinary sterilised milk. When the process is terminated (which lasts about 40 minutes with a temperature of 90° C.) the small opening is closed by means of a special pair of pincers. The autoclave or digester is then closed and the temperature of the milk is brought up to 112°, at which it is kept for a period of 20 minutes. The milk becomes perfectly sterilised and will keep for an indefinite period. In addition to this it is also possible to control the state of preservation of the milk, as every bottle which has been properly treated ought to be nothing more nor less than a glass receptacle nearly filled with milk, the space above the milk being a vacuum. Bottles of milk thus sterilised in 1900 have, when recently opened, been found to be perfectly sweet and well preserved. The distribution of this kind of milk has, it has been shown, reduced the mortality amongst infants at Nancy from 35 per cent. to 7 per cent. M. Peaucellier states that the same process has now been introduced at Amiens and has given perfectly satisfactory results.

ANILINE BLACK DYEING.

THE use of aniline oil and of solutions of potassium bichromate in aniline black dyeing has proved to be in many instances injurious to the health of those engaged in this industry and the Home Office has recently issued a memorandum on the subject signed by the chief inspector of factories, Dr. B. Arthur Whitelegge. As a result of the medical examination of 60 persons employed in this industry a summary of provisions has been drawn up which are deemed necessary for the protection of the health of those engaged in the processes of mixing, preparing, "ageing," chroming, washing off, and drying involved in the preparation of aniline black. Aniline oil as used industrially is known to give rise to definite symptoms of ill health, due to alteration in the blood and to direct action, in severe cases, on the nerve centres. The symptoms in factory workers result mainly from inhalation, but also, in less degree, from absorption through the skin and from decomposition of the salts when the material is allowed to dry on the clothes. The effects are shown in a greyish or bluish colouration of the lips, with a tendency to distension of the small veins, and characteristic paleness of the face. In those who have worked long with aniline, in addition to the changes in the blood, gastric disturbance with loss of appetite is common. Chromic acid or solutions of the alkaline bichromates cause ulceration of the skin, which commences frequently, but not always, after an abrasion of the skin. The root of the nails, the creases over the knuckles, and the skin between the fingers are the parts most generally attacked. This ulceration, though less extensive than has been noted in workers engaged in the manufacture of the crystals, may penetrate to the bone and lead to loss of the nails or deformity of the joints of the finger. Danger is perhaps greatest in the handling of the crystals and boiling of the solution, and among those thus employed perforation also of the septum of the nose has been found. Chromic acid attacks the skin of some persons much more readily than that of others and experience alone can decide whether a particular person will be able to work with impunity or not. In slub dyeing the chrome affection in susceptible persons has been found usually to take the form of a papular eruption on the hands, especially round the knuckles, on the palm, in the fold between the thumb and first finger, and about the wrists and forearms. Constant contact with the solution causes the papule to burst, leaving the chronic ulcerated condition so often found in workers. For the most the following provisions will be recognised as being based on conditions already existing in other factories: 1. The provision of exhaust ventilation by means of ducts and hoods in connexion with a fan (*a*) over each preparing machine; (*b*) at the point where dust is produced in chroming; and (*c*) in the process of steaming. Suitable inlets for air are of course necessary in each room. 2. Ventilation of the "ager" to the outside air by suitable duct, and by a fan where necessary. 3. A meal room for the use of persons employed. No one should be allowed to introduce, prepare,

or partake of food on the premises except in the room provided for the purpose. 4. Proper provision for keeping food, overalls, and clothing not worn during working hours. 5. Ample washing accommodation—e.g., a basin for every five persons, with water laid on and the necessary supply of soap, towels, and nail-brushes. In addition, in view of the share taken by the skin in the absorption probably of aniline, and certainly of bichromate, there should be facilities for the men to rinse the hands close to the place of employment. 6. No person to be allowed to come into contact with bichromate who has any rash or ulcer (the result of chrome) on the fingers, hands, or arms. The person weighing out the bichromate crystals or ladling out the prepared aniline liquor should be provided with (and wear) indiarubber gloves in good condition. Finally, it is suggested that a short notice posted in the workroom embodying the precautionary measures indicated may serve to call attention to the need for special care on the part of the workmen.

FLANNELETTE AND FIRE.

A LITTLE girl, aged five years, the daughter of a hawker, who was burnt recently at Southwark through her clothing, made of flannelette, catching light at a fire, added another victim to the long list of those whose deaths have been due to this substance. The coroner at the inquest upon her body expressed the opinion that it should be rendered criminal to leave a young child in a room with a fire burning and without a fireguard. Unfortunately the offence in such a case would only be detected after an accident, probably followed with fatal results, had taken place. Other remedies have been suggested, such as rendering the fabric non-inflammable or the compulsory printing all over it of a warning as to the readiness with which it is ignited. From time to time we have submitted to tests samples of flannelette said to be made non-inflammable by impregnating it with certain chemical salts, as, for example, sodium stannate and ammonium phosphate, and the results of our experiments were recorded in THE LANCET of Feb. 4th, 1905, p. 307, and July 22nd, 1905, p. 264.

SUDDEN DEATH FROM EXPLORATORY PUNCTURE OF THE CHEST.

THOUGH cases of sudden death after exploratory puncture of the chest have from time to time been recorded there is some tendency to regard the operation as a harmless one to be undertaken readily in order to solve a difficulty in diagnosis rather than an operation to be performed in spite of its risks. Dr. George Carpenter appears to have been the first to call attention to these risks. In the *American Journal of the Medical Sciences* for October, 1893, he described a case in which the chest was explored at the Evelina Hospital for Children by the resident medical officer. Immediately the child coughed, blood poured from the mouth and nose, and death took place from asphyxia. Post mortem the lung was found to be cirrhosed, the stomach full of blood, and the bronchi full of blood-stained mucus. Dr. Thomas Oliver contributed to our columns a short time ago an important paper on the subject in which he reported two deaths and one case of alarming symptoms after exploratory puncture of the chest.[1] Death in these cases appears to be due to cardiac or respiratory inhibition through the pulmonary branches of the vagus or, in cases of extensive pulmonary hæmorrhage, to asphyxia. In the *British Journal of Diseases of Children* for October, 1905, Dr. Joseph H. Wilks has reported the following case. A well-nourished girl, aged three years, was admitted into hospital suffering from a brassy cough. The temperature was 101° F. and the fingers were slightly clubbed; there was fair movement of the chest but less on the left than on the right side. Cardiac pulsation was unduly marked and there was a faint mitral systolic murmur. The apex beat was in the fifth space just outside the nipple line. The whole of the left chest was dull but especially the suprascapular region. On this side the respiratory sounds were weak and had a soft-blowing character with prolonged expiration. Over the lower two-thirds anteriorly they were scarcely heard; posteriorly they were tubular and very weak. Without anæsthesia an exploring needle was inserted in the eighth space, below the angle of the left scapula, and a few flakes of curdy pus and some blood were withdrawn. Immediately dark blood issued in a stream from the needle and the child coughed and expelled blood from the mouth. The needle was instantly withdrawn and the finger placed over the puncture. The pupils dilated, the sphincter ani relaxed, the lips changed colour, and respiration stopped. Artificial respiration produced only a few gasps but no proper inspiratory effort. A slight bulging in the epigastrium was visible, suggesting the entrance of blood into the stomach. For a short time blood flowed from the mouth and nostrils. At the necropsy the left pleura was found universally adherent to the chest wall. On the surface of the lung at the site of puncture were a few small clots. The lung contained numerous small grey tubercles. Section through the puncture showed around it indurated areas containing small caseous foci. The smaller bronchi contained clots and the larger ones and the trachea blood-stained mucus. The heart was pale and its fibres showed cloudy swelling. The stomach contained altered blood and clots. Dr. Wilks thinks that death was not due to asphyxia but to cardiac failure in a patient debilitated by tuberculosis.

[1] THE LANCET, Jan. 2nd, 1904, p. 26.

THE ROYAL COMMISSION ON THE POOR-LAWS.

His Majesty the King has been pleased to approve the appointment of a Royal Commission of which the terms of reference are as follows:—To inquire (1) into the working of the laws relating to the relief of poor persons in the United Kingdom; (2) into the various means which have been adopted outside of the Poor-laws for meeting distress arising from want of employment, particularly during periods of severe industrial depression; and to consider and to report whether any, and if so what, modification of the Poor-laws or changes in their administration, or fresh legislation for dealing with distress are advisable. The Commissioners are:—The Right Hon. Lord George Hamilton, M.P. (chairman), the Right Hon. The O'Conor Don, the Right Hon. Sir H. A. Robinson, K.C.B. (Vice-President of the Local Government Board for Ireland), the Right Hon. Charles Booth, F.R.S., Sir Samuel Provis, K.C.B. (permanent secretary to the Local Government Board for England), Mr. F. H. Bentham, Dr. A. H. Downes, the Rev. T. Gage Gardiner, Mr. George Lansbury, Mr. C. S. Loch, Mr. J. Patten Macdougall (Vice-President of the Local Government Board for Scotland), Mr. T. Hancock Nunn, the Rev. L. R. Phelps, Professor William Smart, the Rev. H. Russell Wakefield, Mrs. Bernard Bosanquet, Mrs. Sidney Webb, and Miss Octavia Hill. Of the Commissioners, Mr. Charles Booth was made a Privy Councillor in 1904 and is the well-known author of "Life and Labour of the People in London"; Dr. A. H. Downes is the chief medical inspector for Poor-law purposes of the Local Government Board; Mr. C. S. Loch is the secretary of the Charity Organisation Society; the Rev. H. Russell Wakefield served on Mr. Long's committee, is the rector of St. Mary's, Bryanston-square, and was formerly Mayor of Marylebone; and Miss Octavia Hill is well known as one who has devoted her life to the question of the housing of the poor. The working of the Poor-laws as they stand is practically formulated upon the report of the Poor-law Commissioners of 1834. In 70 years

many things have happened to change the economic conditions of these islands and there is no one who will not agree that the Poor-laws at present do not do what they are supposed to do—namely, alleviate the destitute. The Commissioners who are about to begin their labours have no easy task before them, but their names are a guarantee both of knowledge of their subject and of honesty of purpose.

SOCIAL QUESTIONS IN THE SCOTTISH HIGHLANDS.

WE have on numerous occasions referred to the prolonged contest of which the slate quarries at Ballachulish in Argyllshire were the scene when the quarry company endeavoured, without giving any reason or explanation, to oust Dr. Lachlan Grant from the position of medical officer to the quarrymen. The highest court of law in Scotland found that Dr. Grant's case must fail on technical grounds and judgment was therefore given in favour of the company, but the Highland quarrymen remained unshaken in their support of Dr. Grant and the front which they presented was so firm that the company deemed it advisable to leave him undisturbed. Dr. Grant has an intimate knowledge of the conditions of life in the Gaelic-speaking parts of Scotland and on Nov. 11th he delivered an interesting address on Modern Highland Problems before a considerable audience at the Glasgow High School Gaelic Class Ceilidh. The ownership of land in the north and west of Scotland has been a serious question for more than 100 years, because the land which was at one time regarded as the common property of each clan gradually passed into the hands of private owners and about 80 years ago much hardship was caused by wholesale evictions of occupiers of small holdings. Dr. Grant thought that the time would come when something of the nature of a reversal of this process would have to be undertaken by buying out large holders at a fair valuation. Afforestation or the systematic planting of trees would also improve the climate, would attract a residential population and would be profitable in many ways. He said that Dr. Anderson had pointed out that a profit might be made by planting trees along the shores of the Highland lochs which would supply convenient means of transport. Many social and domestic problems were awaiting solution but no assistance would be given either by emigration or by the deliberate limitation of families. General sanitation, the housing question, and in particular the care of children's health required attention. All children should be medically examined in schools periodically and such conditions as defects of sight or of hearing and infectious skin diseases should be treated without delay. Dr. Grant also thought that in the Highlands the system of individual payment of fees for medical attendance might be replaced by a comprehensive scheme of medical aid constructed on a basis similar to that of the rate-supported fever hospitals or lunatic asylums.

PRESERVATIVES IN FOODSTUFFS, ESPECIALLY MILK.

ON Nov. 23rd a report was presented by Mr. E. Bevan, the county analyst, and Dr. C. W. F. Young, the county medical officer of health, to the county council of Middlesex, with reference to the use of preservatives in milk. The action of the two officials in question was prompted by the large increase which has occurred of late years in the number of samples which on examination were found to contain preservatives. The council, after consideration of this report, adopted the following motion :—

That a representation be made to the Local Government Board and to the Board of Agriculture and Fisheries urging the necessity of giving effect to the recommendations of the departmental committee on the use of preservatives in food, that the use of any preservative or colouring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drugs Acts.

The departmental committee, which was constituted in 1899 and reported in 1901, came to the conclusion that all preservatives in milk should be prohibited. No official notice, however, has been taken of the recommendations of this committee and although prosecutions for the addition of preservatives have been successfully carried through yet in many instances a conflict of medical evidence has arisen and the prosecution has failed. As examples we may refer to two cases which have recently been before the courts. On Sept. 8th a dairy company was charged in the West Riding court at Wakefield with selling milk containing 4·8 grains of boric acid per pint. Dr. J. R. Kaye, the medical officer of health of the West Riding, said that in his opinion boric acid in milk was injurious to health. On the other hand, Dr. Robert Hutchison and Dr. Thomas Robert Bradshaw gave it as their opinion that boric acid to the extent which was found in the milk in question was not injurious to health. The magistrate therefore dismissed the case. Now for the other side of the shield. On Oct. 25th a dairy farmer was charged at the South-Western police-court for a similar offence. The amount of acid present was one and a half grains per pint. Here two medical men—namely, Professor H. R. Kenwood and Dr. McManus—gave it as their opinion that the use of boric acid in milk even in small quantities was injurious. Mr. Garrett fined the defendants 40*s.* and £10 10*s.* costs, remarking that it was a great pity that the legislature had not thought fit to deal finally with the matter. Putting aside the definite question as to whether preservatives are or are not injurious to health we will only say that a quantity of, say, boric acid which would not injure one person might quite conceivably be extremely injurious to another, but, in our opinion, all purveyors of foodstuffs, especially of milk, should be compelled if they use preservatives to state definitely the kind of preservative used and its amount. They argue that preservatives are necessary and that they are harmless. There can be, therefore, no possible objection to the customer knowing what he is buying. We can only hope that the very sensible action of the Middlesex County Council will result in some definite steps being taken.

THE RÔLE OF OBSERVATION IN THE DIAGNOSIS OF CASES OF INSANITY.

THERE is a well-known tendency on the part of the inexperienced in the methods of clinical examination to seek information as to a patient's condition by questioning rather than by observation. In the domain of psychological medicine there is perhaps more justification than usual for the notion which underlies this tendency and which prompts a series of questions as the means most likely to throw light upon a patient's state; but there is at the same time a greater probability that important information which is to be derived from simple observation alone will be overlooked. In a booklet entitled "Golden Rules of Psychiatry," which contains in a small compass much information of practical utility to the practitioner and the student, the author, Dr. J. Shaw, duly recognises the value of observation in the examination of persons of unsound mind; he furthermore emphasises the advantage in many cases of listening rather than questioning. In examining cases of supposed mental disorder the inexperienced are liable to pass over evidence to be derived from observation of the physiognomy, the conduct, and the general physical condition. Alterations in the two former respects can only be adequately appreciated by comparing the patient as he is with his appearance and behaviour when in health, and for this purpose a photograph and opportunity for questioning the friends and guardians are often necessary. Unless a systematic examination of the physical condition be made there is risk of overlooking, for example, general paralysis

of the insane or the fact that alcohol or some other drug is the cause of the patient's mental disorder. To pass lightly over the physical examination in these cases is to underestimate the influence of the mind upon the body, which is exemplified in the various disorders of nutrition exhibited by the insane. Physical examination will also reveal the presence of degenerative stigmata, which undoubtedly have their significance from the point of view alike of diagnosis and prognosis. It sometimes happens that a medical man is called upon to certify for an asylum a patient whom he has never seen before, receiving perhaps a call to the police station for the purpose. Difficulty may be experienced because the patient will not speak. In such cases the certificate requires in a very literal sense to be made out upon "facts observed," as the legal form in use has it. Incidentally, it may be remarked that in these instances it is perfectly reasonable and legitimate that the certificate of insanity should be mainly drawn up upon "facts communicated by others," but if the circumstances are not urgent it is prudent to request a further opportunity of examination in a case in which the usual oral method cannot be employed.

JOSEF SKODA, 1805-1881.

AMONG the masters of clinical medicine in the nineteenth century Josef Skoda holds no mean place. Born just 100 years ago—namely, on Dec. 10th, 1805—he and his lifelong friend Rokitansky, his senior by one year, together with Oppolzer, three years his junior, wrested from Paris for the Vienna school its leadership of the medical world in the last century. Although physical diagnosis was not unknown and pathological anatomy had made substantial strides by Skoda's time, yet his was the merit of establishing the orderly relations subsisting between physical signs and anatomical conditions, between the clinical symptoms of disease and the revelations of the deadhouse. Skoda remained content with observing and rationally explaining the facts; he refrained from entering on the speculative and often misleading path trodden by his greater pathological colleague, Rokitansky. Fully recognising the achievements of his French predecessors, Corvisart, Laennec, Piorry, and Bouillaud, and using their work as a basis, Skoda was able to introduce method and simplicity into their complicated systems and descriptions of percussion notes, while in addition he gave a scientific explanation of their varieties based on an application of natural laws to anatomical relations and pathological changes. The fruit of these studies and observations appeared in 1839 in an epoch-making medical classic—an essay on Percussion and Auscultation. Most of the principles there set forth have stood the test of time and remain valid to this day. In the explanation of auscultatory phenomena, partly from a legitimate bias towards his own work and partly from a racial prejudice against the French, he was not always so happy, was sometimes unjust, and not infrequently wrong. It was natural that Skoda should apply similar scientific tests to therapeutic treatment and as natural for him to recognise that many of the results attributed to the polypharmacy of the day should really be credited to nature. Consequently, he attached more importance to physical than to pharmaceutical therapeutics and preferred the emptying of a cavity which contained fluid rather than the giving of drugs hypothetically to promote absorption. Many celebrated physicians leave a deeper impress on their generation by their personality and clinical teaching than by their written contributions to the advancement of medicine. Of these Skoda was one and beyond the work to which allusion has already been made he published little. But his reputation as a clinical teacher, first in the special department for diseases of the chest in the Allgemeines Krankenhaus of Vienna and later for 25 years as professor of clinical medicine at the University Clinic in the same hospital, remained undimmed to the time of his retirement in 1871. He lived for ten years longer a martyr to gout, surviving Rokitansky, Oppolzer, and Hebra, the colleagues who with him had made the Vienna school.

THE medical officer of health of the Cape Colony states that for the week ending Nov. 4th the condition of the colony as regards plague was as follows. No case of plague in man or other animal occurred at any place in the colony during the week in question except in 1 mouse which was found dead at Port Elizabeth.

THE Bradshaw lecture will be delivered in the theatre of the Royal College of Surgeons of England by Mr. Henry T. Butlin, F.R.C.S. Eng., on Wednesday, Dec. 13th, at 5 o'clock. The subject of the lecture is: "Carcinoma as a Parasitic Disease."

THE PROPOSED AMALGAMATION OF THE LONDON MEDICAL SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

A SPECIAL general meeting of the Royal Medical and Chirurgical Society of London was held at 20, Hanover-square, W., on Nov. 23rd, Sir R. DOUGLAS POWELL, the President, being in the chair, to consider the report on the union of medical societies as amended and adopted at the meeting of the general committee of representatives of the societies held on July 19th, 1905, and, if approved, to consider certain motions.

The PRESIDENT in a short address, dealt with the present position of the society and pointed out that the library which they possessed had been one of the great cares of the society and had been most successfully built up during the past 100 years of the society's existence. The society therefore should most carefully safeguard this most valuable possession. The council of the society had considered the report of the executive committee of the general committee of representatives of the societies and had suggested certain amendments which were in the hands of Fellows of the society. He then called upon Sir William S. Church to propose the first motion.

Sir WILLIAM CHURCH said that the report which the Fellows were asked to adopt was not the final one on which the new society would be constituted, for that would have to come again before the Fellows of this society after the reports from all the other societies had been considered by the general committee of representatives of all the societies. He pointed out that the Royal Medical and Chirurgical Society was in a sounder financial condition than it had ever been before, having cleared off all the floating debt and having a considerable balance in hand. The debenture debt of £33,000 was a first charge on the society's buildings, but he thought it probable that the present debenture holders would not object to the transference of the debt on the same security to the new society. He then moved:—

1. That the "Report on the Union of Medical Societies as amended and adopted at the Meeting of the General Committee of Representatives of the Societies held on July 19th, 1905," be, and is hereby, approved and adopted, subject to the modifications recommended by the council of the Royal Medical and Chirurgical Society, and that the council be, and is hereby, instructed to endeavour, in negotiating with the general committee of representatives of the society, to secure the adoption of all these modifications.

Dr. ROBERT HUTCHISON, in seconding the motion, said that as a junior Fellow of the society he had some hesitation in so doing, but since the effects of the action of the society to-day would in all probability fall to a great extent on the junior Fellows of the society he thought that they in many ways were even more responsible than the senior Fellows of the society and if there was a strong feeling among the junior members against the union then the motion should not be adopted. He pointed out that the advantages resulting

from the union would be great and the financial economy which would result was one which would appeal especially to the junior Fellows.

Brigade-Surgeon Lieutenant-Colonel A. B. R. MYERS pointed out that the society had nothing to gain by the union and a great deal to lose. He, as an old Fellow of the society, was entirely opposed to the amalgamation. The Royal Medical and Chirurgical Society would, if the motion was carriedd, lose its identity and reputation of the past and by this action would commit suicide.

The motion was now put to the meeting by the PRESIDENT and was carried.

The following motion was then proposed by Dr. P. H. PYE-SMITH and seconded by Mr. D'ARCY POWER:—

2. That the council be, and is hereby, authorised to take all such steps and proceedings and to do all such acts and things as to the council in its discretion shall seem necessary or expedient for carrying into effect the amalgamation of the Royal Medical and Chirurgical Society with any sufficient number (at the discretion of the council) of the societies named in the "Report on the Union of Medical Societies as amended and adopted at the meeting of the General Committee of Representatives of the Societies held on July 19th, 1905," or with any other society or societies, either in accordance with the scheme set forth in the report subject or not (as the council shall think fit) to the modifications recommended by them or to such (if any) other modifications, amendments, or alterations as to the council in its discretion shall seem necessary or expedient or in accordance with such other scheme as the council in its discretion shall think desirable.

This was carried and the meeting terminated.

CLINICAL SOCIETY OF LONDON.

A special general meeting of the Clinical Society of London was held at 20, Hanover-square, W., on Nov. 21st, Mr. H. H. CLUTTON, the President, being in the chair, to consider the report on the union of medical societies as amended and adopted at the meeting of the general committee of representatives of the societies held on July 19th, 1905.

The PRESIDENT, in introducing the subject, said that questions involving alterations in the rules of the society could only be raised at the annual meeting, but that it was now open to members to express their views on the matter.

Sir WILLIAM S. CHURCH said that the proposal now to be considered was an outline only and that the final scheme would be fully discussed and brought before the society on a future occasion.

Sir DYCE DUCKWORTH spoke as an advocate of amalgamation and proposed the following motion, which had been already accepted by the council of the society:—

That the Clinical Society of London expresses an opinion in favour of the amalgamation of the various medical societies of London, provided that the scheme proposed prove to be financially feasible.

Mr. CHARTERS J. SYMONDS, in seconding the motion, said that the scheme before the meeting did not indicate how the funds of the various societies were to be dealt with and it would be necessary to decide what power the Clinical Society of London, after amalgamation, would possess over the central reserve fund. The future position of the Transactions of the Clinical Society of London would also have to be considered.

Mr. JOHN LANGTON said that a guarantee fund of not less than £5000 would have to be formed. The Medical Society possessed a valuable library and ought not after amalgamation to be called on to pay an extra library subscription.

After some further remarks by Dr. JOHN ANDERSON, Dr. S. H. HABERSHON, Sir FELIX SEMON, and others the motion was carried unanimously.

MEDICINE AND THE LAW.

Suicide by Omission.

CORONERS' juries occasionally are puzzled in finding "by what means" a person who has deliberately declined medical or other bodily relief has come to his death. There are two classes of such cases. There are those people who are obsessed with a hereditary dread of entering the parochial workhouse and who as the result of this antipathy, although they are afflicted with illness and are friendless and utterly destitute, refuse to be admitted into the Poor-law infirmary, or even to apply to the relieving officer for temporary assistance whether as out-relief or as advice from the district medical officer. Such cases are illustrated by the 34 deaths from privation and starvation returned by the metropolitan coroners last year. There are also people who from fear of bearing a fatal diagnosis or from some peculiar religious belief, always akin to fatalism, refuse to be assisted with medical advice and treatment even when they are proffered. Such a case occurred on Nov. 24th at the Rotherhithe coroner's court, where a man, aged 54 years, was found by the jury to have died in accordance with the medical evidence from fatty degeneration of the heart, accelerated by pneumonia and self-neglect. It appeared that he had refused to seek medical aid as he believed in the principle of "faith-healing," in support of which doctrine he sometimes had preached; there was no evidence that he had deliberately refused medical advice with the sole object of ending or of shortening his life; Dr. H. R. Oswald, the coroner, therefore directed the jury that the deceased could not be returned as a suicide by omission or self-neglect. Had there been intentional neglect on his part and also positive proof that medical advice would have been useful in preventing his death the verdict might have been *self-murder*—that is, suicide; the facts of the case, however, pointed to *self-manslaughter*, an offence unknown to our criminal jurisprudence.

A Mysterious Case.

It will be remembered that in our issue of Feb. 25th we published under the above heading an outline of the proceedings at an inquest held upon the body of a Mrs. Cohen residing at Gravesend. The affair reached its termination at the South-Eastern Assizes on Nov. 28th, when Arthur Walters pleaded guilty to various counts. His principal offence was that he had forged a death certificate in the case of Mrs. Cohen in the name of Arthur Piercefield Walters, a duly qualified medical practitioner, residing in the Island of Eigg. Mr. Justice Grantham sentenced the prisoner to 12 months' hard labour.

ASYLUM REPORTS.

County Borough of West Ham Asylum (Fourth Annual Report for the Year 1904).—There were received into this asylum during the year 341 patients, of whom about 100 presented fair prospect of recovery, the rest being hopeless from the first. 251 were discharged, including 90 boarded out at other asylums. Of the discharges proper 103 were recovered (31·88 per cent. on the admissions). The deaths numbered 156, or 20·13 per cent. of the average number daily resident, a very high proportion. For the previous two years the proportion was rather above 18 per cent. These are very high figures, as is recognised by Dr. D. Hunter, the medical superintendent. They are accounted for largely by senile decay and general paralysis. The corresponding figures for England and Wales and for county and borough asylums for the past ten years average 10·06. The average number daily resident was 774. A table is given which shows that the ratio of the insane per 10,000 of the population in West Ham has steadily increased during the past four years from 26·5 to 30·3, the like ratio for England and Wales having risen from 30·27 to 31·62 in the same time. The admission-rate per 10,000 has risen in West Ham from 9·47 in 1899 to 11·82 in 1904, whereas the figures for England and Wales were 5·32 in 1899 and 5·86 in 1903, the last year for which they were available at the date of this report. The fact that the ratio of admissions is so much higher in West Ham whilst the ratio of insan to population is rather lower is accounted for by the large proportion of senile and debilitated cases admitted. There is urgent need for the provision of further accommodation at the asylum, according to the reports of the medical superintendent and of the Commissioners in Lunacy. The causal influence of heredity is marked in the admisions; out of 746 cases received during the past three years some 50 per cent. presented either a history of insanity or signs of congenital defect. Alcoholic excess was a cause of insanity in 24 per cent., a usual proportion; this and other causes are not specially noteworthy. More than half the admissions were cases of mania and melancholia. This asylum in common with others has to record that cases of senile mental disorder are sent in large numbers. 81 of the admissions were 60 years of age or upwards and 43 were more than 70. Dr. Hunter remarks that he has repeatedly called attention to the fact that a large number of these senile cases simply required careful nursing in a workhouse infirmary. It is to be hoped that workhouse authorities will take steps to provide the necessary accommodation for these cases

and thereby remove a cause of widespread complaint in asylums. Tuberculosis accounted for only 12·18 per cent. of the deaths. A small isolation block is to be built for tuberculous cases. Six cases of small-pox occurred in one of the wards, the disease being imported by a visitor. Prompt isolation and vaccination of all resident checked further spread. Nine deaths occurred from dysentery, and the Commissioners note that no less than 47 cases of this disease occurred in 11 consecutive months, which does not speak well for the general health. It appears that the annual rate of increase of patients chargeable to West Ham is as much as 80. An interesting table shows the gain and loss in weight of those discharged recovered during the year (103), and with but five exceptions, which show small losses, the record shows a gain in weight for each patient, in most cases a substantial gain.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Dec. 1st, 1827

THE observations[1] which we deemed it our duty to offer to the notice of the public on a former occasion, relative to the medical qualifications of Coroners, have provoked much interesting discussion amongst Barristers, and elicited a vast number of valuable communications from many intelligent members of our own profession. The novelty of our proposition seems to have excited, in many quarters, considerable surprise; surprise, however, accompanied with the strongest approbation of the course we have recommended to be adopted. That coroners should be endowed with superior medical attainments for the adequate performance of the functions they have to execute, is a fact as indisputable, as that a JUDGE of the court of King's Bench should be acquainted with the practice of that court. Coroners, in virtue of their office, either have or have not certain public duties to execute; if the former, we should be glad to know how these can be beneficially discharged if those officers are totally ignorant of the principles on which their decisions should be grounded; if the latter, the institution of Coroner is useless, and ought to be abolished. It cannot be denied, however, that the Coroner's court is one of vast importance to the community; that it is one of the main pillars of criminal justice, and that the mode in which its functions are performed should be zealously watched, both by the public and by government. To suppose that a person who is ignorant of anatomy, physiology, pathology, surgery, and chemistry, can correctly charge a jury relative to the *causes* of death in a majority of inquests, is so truly ludicrous, that the bare discussion of the question amounts to an absurdity. But it will probably be said, that CORONERS are governed in their decision by the *evidence* of medical practitioners, and that the institution thus derives the full benefit of medical knowledge. The opinion of a judge and that of a witness are generally regarded in a very different light by all intelligent juries; as it not unfrequently happens, that *a witness* has often the most powerful motives for falsification and concealment.[2]

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7799 births and 5360 deaths were registered during the week ending Nov. 25th. The annual rate of mortality in these towns, which had been 15·6, 15·6, and 15·5 per 1000 in the three preceding weeks, rose again to 17·9 per 1000 last week. In London the death-rate was 19·4 per 1000, while it averaged 17·3 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 9·3 in Handsworth (Staffs.), 9·6 in Willesden, 9·9 in Burton-on-Trent, 10·2 in Bournemouth and in Northampton, 10·4 in Coventry, and 10·5 in Hornsey; the highest rates were 21·1 in Rochdale, 21·6 in Preston, 22·0 in Wolverhampton, 22·1 in Burnley, 23·6 in Huddersfield, 24·9 in Liverpool and in West Hartlepool, and 27·1 in Oldham. The 5360 deaths in these towns last week included 355 which were referred to the principal infectious diseases, against 374, 371, and 338 in the three preceding weeks; of these 355 deaths, 110 resulted from measles, 76 from whooping-cough, 54 from diarrhœa, 52 from diphtheria, 39 from scarlet fever, and 24 from "fever" (principally enteric), but not any from small-pox. No deaths from any of these diseases were registered last week in Norwich, Hanley, Burton-on-Trent, Walsall, Handsworth (Staffs.), Grimsby, Wallasey, or Bury; among the other towns the highest death-rates from the principal infectious diseases were recorded in East Ham, Ipswich, Aston Manor, Warrington, Salford, Oldham, Blackburn, and Preston. The greatest proportional mortality from measles occurred in Croydon, East Ham, Birmingham, Aston Manor, Blackburn, Preston, and Swansea; from scarlet fever in Rotherham; from diphtheria in Huddersfield; from whooping-cough in Ipswich and in Burnley; from "fever" in York; and from diarrhœa in Wolverhampton, Warrington, Oldham, and Middlesbrough. No death from small-pox was recorded last week in any of the 76 towns; and no cases of this disease were under treatment in the Metropolitan Asylums Hospitals during the week. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, Nov. 25th, was 4127, against 4200, 4154, and 4120 on the three preceding Saturdays; 470 new cases were admitted during the week, against 522, 494, and 425 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 340, 383, and 401 in the three preceding weeks, further rose to 490 last week, and were 105 above the number in the corresponding period of last year. The causes of 49, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Manchester, Bradford, Leeds, Hull, Newcastle-on-Tyne, and in 45 other smaller towns; the largest proportions of uncertified deaths were registered in Reading, Hanley, Birmingham, Liverpool, Blackburn, Barrow-in-Furness, Sheffield, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 17·6, 17·5 and 17·5 per 1000 in the three preceding weeks, rose to 21·9 per 1000 during the week ending Nov. 25th, and was 4·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·2 in Perth and 17·4 in Edinburgh to 24·1 in Dundee and 29·7 in Greenock. The 735 deaths in these towns included 48 which were referred to measles, 14 to diarrhœa, ten to whooping-cough, eight to diphtheria, three to "fever," and one to scarlet fever. In all 84 deaths resulted from these principal infectious diseases last week, against 55, 61, and 64 in the three preceding weeks. These 84 deaths were equal to an annual rate of 2·5 per 1000, which was 1·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 19, 28, and 34 in the three preceding weeks, further rose last week to 48, of which 23 occurred in Glasgow, 13 in Greenock, and 12 in Dundee. The deaths from diarrhœa, which had been 17, 18, and 19 in the three preceding weeks, declined again to 14 last week, and included eight in Glasgow, three in Aberdeen, and two in Edinburgh. The fatal cases of whooping-cough, which had been eight, seven, and two in the three preceding weeks, rose again last week to ten, of which six were registered in Glasgow. The deaths referred to "fever," which had been four, one, and two in the three preceding weeks, increased again to three last week, and included two fatal cases of typhus, one of which occurred in Edinburgh and one in Leith. The deaths referred to diseases of the respiratory organs in these towns, which had been 127, 152, and 130 in the three preceding weeks, rose again last week to 159, but were 15 below the number in the corresponding period of last year. The causes of 20, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·6, 20·1,

[1] See "Looking Back" in THE LANCET, Nov. 18th, 1905, p. 1502.
[2] Excerpt from a leading article.

and 20·8 per 1000 in the three preceding weeks, rose to 22·7 per 1000 during the week ending Nov. 25th. During the past four weeks the death-rate has averaged 22·3 per 1000, the rates during the same period being 17·5 in London and 16·4 in Edinburgh. The 165 deaths of persons belonging to Dublin registered during the week under notice were 14 in excess of the number in the preceding week and included seven which were referred to the principal infectious diseases, against six, seven, and five in the three preceding weeks; of these, three resulted from whooping-cough, three from diarrhœa, and one from scarlet fever, but not any from small-pox, measles, diphtheria, or "fever." These seven deaths were equal to an annual rate of 1·0 per 1000, the death-rates last week from the principal infectious diseases being 1·1 in London and 0·8 in Edinburgh. The deaths from diarrhœa, which had been four, three, and two in the three preceding weeks, rose again last week to three. Three fatal cases of whooping-cough were recorded last week, against one in the preceding week. The 165 deaths in Dublin last week included 34 of children under one year of age and 55 of persons aged 60 years and upwards; these numbers were respectively nine and 16 in excess of those recorded in the preceding week. Three inquest cases and two deaths from violence were registered; and 71, or more than two-fifths, of the deaths occurred in public institutions. The causes of nine, or nearly 6 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: A. E. Weightman to the *Leviathan;* C. Bradley to the *Cæsar;* and G. A. Dreaper to the *Nile* on recommissioning. Surgeons: G. C. C. Ross to the *Leviathan;* A. G. Eastment to the *Spartiate:* and H. R. Gardner to the *Cæsar* on recommissioning.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. B. Day, from charge of the Military Families Hospital, Curragh, is posted to Devonport for duty and will be relieved at the Curragh by Captain A. E. Weld, Devonport. Lieutenant-Colonel J. J. C. Donnet is transferred from the Quetta Division to the Jhansi Brigade, India. Lieutenant-Colonel J. R. Dodd is appointed to officiate as Principal Medical Officer, Bareilly and Garhwal Brigade, India.

VOLUNTEER CORPS.

Rifle: 1st Middlesex (Victoria and St. George's) Volunteer Rifle Corps: Surgeon-Captain F. J. McCann resigns his commission (dated Nov. 13th, 1905). 2nd Volunteer Battalion the Highland Light Infantry: Surgeon-Lieutenant J. F. Fergus resigns his commission (dated Nov. 29th, 1905). 15th Middlesex (the Customs and the Docks) Volunteer Rifle Corps: Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel F. W. Humphreys resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 13th, 1905).

DEATHS IN THE SERVICES.

Fleet Surgeon Bassett Charles Edward FitzGerald Gunn, R.N. (retired), at Chatham, on Nov. 20th, aged 46 years. He entered the service as surgeon in 1883, was promoted to fleet surgeon in 1903, and retired in the same year. He served in the cruiser *Mersey* (Captain De Salis) in the Home Fleet and also in the *Alexandra* with the naval brigade landed for service in the Soudan during the Gordon Relief Expedition, 1884–85 (medal with clasp and bronze star).

DEATH OF THE PRINCIPAL OF THE RUSSIAN IMPERIAL MILITARY MEDICAL ACADEMY.

The *Novoe Vremya* announces that the principal of the Imperial Military Medical Academy, Alexander Ivanovitch Taranetzky, M.D., passed away on Nov. 16th after a long illness. He succeeded to the position of Principal on the death of Professor Paschutin. Born in 1845 in Weimar, Saxony, he was educated there and joined the St. Petersburg Medical and Surgical Academy in 1864, where he finished his curriculum. In 1887 he was made ordinary professor of normal anatomy. He was the author of many works on comparative and human anatomy and other subjects.

MEDICAL COMFORTS IN THE ROYAL NAVY.

The Admiralty, having had under consideration the present scale of medical comforts as laid down in Appendix 22 of the King's regulations, has decided to introduce a revised scale which is to consist of arrowroot, cornflour, sago, and pearl barley, soups, comprising beef-tea, gravy, oxtail thick and clear, and julienne, mutton broth, chicken broth, port wine, and bovril. The existing supplies under the old scale are, however, to continue to be made in order to use up the stocks on board ships and at the victualling yards of those articles of medical comforts which are not included in the revised scale.

EXAMINATIONS FOR MEDICAL OFFICERS IN THE ROYAL NAVY.

In order to lessen the inconvenience of medical officers who wish to qualify for the rank of staff surgeon owing to ships not being in the vicinity of a naval hospital when an examination is held it has been decided that the examination may take place on board such ship as may be directed by the senior officer present, the day of examination to be the same, or as nearly as possible, as that in the hospital. The fleet surgeon of the flagship or senior medical officer should superintend the examination, which will be conducted similarly to those at the hospitals.

THE ROYAL ALBERT HOSPITAL, DEVONPORT.

"War Course College, Devonport," is to be the official name of that portion of the Royal Albert Hospital which has been appropriated by the Admiralty for war courses, the first of which commenced this week.

THE IMPERIAL PEACE MEMORIAL.

In consequence of the inability of the Government to provide a site appropriate to the erection of a national monument to all who fell in the South African War we understand that the committee of the Memorial Fund has decided to abandon the idea of raising a national memorial and has given instructions for the return of subscriptions. The proposal, which was put before the public in 1900, has been under the consideration of the Government since March, 1902.

Upon the recommendation of Major-General Sir F. Howard, K.C.B., C.M.G., acting general officer, commanding in chief Welsh and Midland Command, the Secretary of State for War has granted an extension of service, under Volunteer regulations, to Brigade Surgeon Lieutenant-Colonel P. E. Hill, V.D., 1st V.B., South Wales Borderers, Senior Medical Officer South Wales Border Volunteer Infantry Brigade.

Lord Roberts has accepted the presidency of the National Service League, the principle of which is to obtain the recognition of the individual obligation of our male population to fit themselves at a suitable age for the defence of their country.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editors of THE LANCET.

SIRS,—As treasurer of the Royal Medical Foundation of Epsom College may I ask for the assistance of your readers at a time when the efforts of the Council to carry on the good work of the institution are severely handicapped. Owing to a breakdown in the drainage system which was laid 50 years ago a sum of over £6000 has had to be spent in making everything perfectly sound, and this has only been managed by selling a part of our small general purposes fund.

In the face of grave difficulties the numbers of pensioners and foundation scholars have not been allowed to sink below 50 of each class. The expenses for the support of these numbers have been very inadequately met by the urgent appeals for help and they cannot be kept up unless more support is received. To reduce the number in either case would inflict untold misery.—I am, Sirs, yours faithfully,

Nov. 27th, 1905. C. HOLMAN, Treasurer.

THE PROPOSED AMALGAMATION OF THE LONDON MEDICAL SOCIETIES.

To the Editors of THE LANCET.

SIRS,—When the Hanover-square scheme was first broached to me I was rather caught by the idea. The word *centralisation* in itself was attractive. But I fear lest

my first impressions should prove incorrect. I do not ask myself what any particular society would gain by this scheme, but I may ask what the profession at large would gain by it. My fear is lest it should lose by it.

The general practitioners are the backbone of our profession, and they are in possession of the greatest amount of general knowledge. The physician knows his particular line of work, the surgeon knows his, and the obstetrician his. But the general practitioner is more or less perfectly acquainted with the work of all three branches. He it is, and only he, who can take the wide and unobstructed view in all questions of disease and treatment. It is, therefore, to the greatest possible advantage of the profession that there should be centrally placed popular medical societies in which the general practitioner, the physician, the surgeon, and the obstetrician (and with these I include the specialists generally) should be able to meet and discuss problems of disease. This certainly was Lettsom's opinion when he started the Medical Society of London in 1773. In the amalgamation scheme what provision would exist for the continuance of this excellent arrangement? There would be the Sections of Medicine, Surgery, Obstetrics, Ophthalmology, and so on, but where would be the Section in which the man of wide views will be able to discuss obscure problems of disease side by side with the physician and the surgeon, with, may be, some friendly specialist joining in?

My opinion is that the realisation of this amalgamation scheme would give a very serious set-back to medical education in the widest sense of the term. And, further, I think it probable that if the old Medical Society of London were, as asked of it, to hand over its splendid history and traditions, yes, and even its privilege of existence, to its highly esteemed and expectant young relative in Hanover-square, another Lettsom would arise and insist upon the need of the foundation once more of a new Medical Society established upon the widest and most solid foundation of the general educational interests of our profession, and unfettered by central control. I am, Sirs, yours faithfully,

Nov. 27th, 1905. EDMUND OWEN.

THE MECHANISM AND TREATMENT OF THE ATTACK IN SPASMODIC ASTHMA.

To the Editors of THE LANCET.

SIRS,—In his lecture on the above subject published in THE LANCET of Nov. 25th Dr. Alexander Morison refers to the enlargement and fixation of the chest observable during the asthmatic paroxysm. It is remarkable that in spite of the recent advances in physiology and pathology no satisfactory explanation has yet been offered of this phenomenon. We want to know how, and why, the chest gets fixed in expansion in asthmatic dyspnœa. Salter was much struck by the violent contraction of the respiratory muscles during the seizure and could not understand how, in spite of this, the chest should remain fixed "as in a vice." He tells us that "one result of these straining efforts to fill the chest is a permanent distension of it—its walls are kept fixed in a condition of extreme inspiration," a statement which cannot be said to be in any way explanatory. Nor was this physician able to give a *raison d'être* for the expansion; he admitted quite frankly that he could "not see that anything is to be gained by it."

Dr. Morison appears to agree with the late Dr. W. E. Steavenson in referring the expansion to a primary contraction of the respiratory muscles, "the preponderantly active muscles of inspiration overpowering the weaker expiratory act." He does not make it clear whether or not he attributes this preponderating action to the inspiratory muscles being more powerful than the expiratory, a view which has been put forward, but without, in my belief, any justification. Dr. Morison appears to hold that the seizure is due to a primary inspiratory expansion accompanied by a spasm of the bronchi and he hints at a possible swelling of their lining membranes also, but neither he nor Dr. Salter is able to show any causal connexion between the presumed bronchial narrowing and the observed thoracic expansion.

Though it may not at present be possible fully to explain the asthmatic attack its chief features do, I believe, admit of some sort of rational exposition. The thoracic expansion observed in this affection is, I submit, but an instance of a general truth which has been strangely overlooked—i.e., that *in all cases of dyspnœa the chest tends to be expanded*. We see this truth exemplified alike in the physiological breathlessness of muscular exertion and in the pathological breathlessness attending, among other affections, heart disease, phthisis, croupous and catarrhal pneumonia, bronchitis, emphysema, pneumothorax, hydrothorax, and spasmodic asthma itself.

That the chest tends to be expanded in all these conditions admits of no doubt and it is somewhat surprising that the fact should not have been emphasised. Why, we have now to ask, does dyspnœa tend to cause this expansion? Common sense suggests the answer. We are beginning to see that many of the phenomena observed in disease are compensatory—efforts on the part of the organism to fight against it. We should therefore expect the dyspnœic expansion of the thorax to subserve some useful purpose; and there can be no doubt that it does. This leads me to enunciate a second important principle—i.e., that *the inspiratory position is the one most favourable to the pulmonary circulation*. The breath can be held much longer in the inspiratory than in the expiratory position. When we come to inquire into the reasons for this we find at least three: (1) the smallest pulmonary vessels are opened out to their fullest extent in complete inspiration and consequently the pulmonary resistance to the right heart is then at its minimum; (2) pulmonary suction is at its maximum in full inspiration, when therefore the blood is sucked into the heart with greatest force both from the caval and pulmonary veins; and (3) the smaller bronchial tubes are opened out most completely in full inspiration—a fact I had overlooked and the recognition of which I owe to Dr. Francis Hare. Its truth almost any bronchitic patient may demonstrate on himself by noting the effect on the bronchial râles of varying the size of his chest. Often the holding of the chest in an expiratory position will call them plenteously forth. Hence, whenever the lining membrane of the small bronchi is tumid or yields a superabundant secretion it is of advantage to keep the chest expanded if only to widen the tubes: there can be little doubt that these latter are considerably narrowed during the asthmatic paroxysm.

How, we may here ask, is the dyspnœic expansion of the chest produced? It must obviously be by a preponderating action of the inspiratory over the expiratory muscles, and here I come to a third principle which, as in the case of the other two, has been largely overlooked—i.e., that with the exception of such affections as whooping-cough, where there is an obvious perversion in the nervous mechanism of respiration, and in the case of serious obstruction in the trachea or larynx, as from membrane or a foreign body—*in all cases of acute dyspnœa there is violent contraction of the inspiratory muscles with little or no contraction of the expiratory muscles*. Prolonged observation has convinced me of the truth of this statement so far as concerns such diseases as pneumonia, bronchitis, emphysema (except in the later stages when the transverse abdominal muscles contract so as to thrust the diaphragm upwards), phthisis, pneumothorax, hydrothorax, and cardiac failure. Unfortunately, I have not had an opportunity of observing a genuine asthmatic seizure since I commenced these observations, and it may be that this disease is an exception to the rule. The fact that during the attack expiration is many times longer than inspiration and is accompanied by wheezing suggests a forcible contraction of the expiratory muscles.

Admitting this apparent difficulty, I would suggest the following explanation of the paroxysm. Owing to a narrowing of the smaller tubes—whether from swelling of their lining membrane or spasm of their muscular fibres, or both combined, need not for the moment concern us—dyspnœa occurs and in consequence of this the chest becomes automatically expanded in the manner and with the object already described. Given bronchial obstruction, the distress will be far less urgent with an expanded than with a contracted chest, extreme expansion providing the maximum respiratory surface and the maximum pulmonary blood flow. By closing the mouth and compressing the nostrils so that only a meagre current of air can pass through them, we can in a measure imitate the condition of a patient during an asthmatic attack, and it will be found that under these circumstances the chest gradually assumes the position of complete inspiration, a circumstance which strongly suggests that the thoracic expansion of asthma is a secondary phenomenon of a compensatory character.

It must be confessed that it is not easy to explain on the views just enunciated the good effect which Dr. Morison has been able to obtain by compressing the thorax during the

attack. This result seems to be incompatible with the view that the inspiratory spasm is secondary to bronchial narrowing and wholly compensatory in nature and suggests either that it is a primary event or, again, that there is some obstruction to the emission of air which cannot be overcome by the expiratory muscles, in which case we should expect the latter to be violently contracted during the attack. Are they? This is a point on which information is very desirable. Another possible explanation of the beneficial effect of Dr. Morison's manœuvre is that it helps to break down the nervous paroxysm on which we may suppose the asthmatic seizure to depend. But whatever the explanation, certain it is that in the thoracic expansion characteristic of the acute dyspnœa of heart disease, pneumonia, and pleural effusion, or in the physiological dyspnœa caused by muscular exercises the adoption of this method of treatment would be fraught with disaster. Apologising for the length of this letter, I am, Sirs, yours faithfully,

Wimpole-street, W., Nov. 25th, 1905. HARRY CAMPBELL.

To the Editors of THE LANCET.

SIRS,—I was much interested in Dr. A. Morison's lecture on the above subject published in THE LANCET of Nov. 25th and I can fully confirm the benefit from the mechanical treatment of spasmodic asthma which he claims. But, as pointed out, the treatment is so obvious that Dr. Morison is incorrect in supposing that it has not been previously practised. Seven years ago when an undergraduate at Cambridge it occurred to me while watching the struggles of a fellow student and we practised it with much relief to my comrade. Dr. W. Ewart at St. George's Hospital has long taught artificial expiration but his method has been to seize the lower ribs firmly in both hands and squeeze toward the mid-point of the thorax—i.e., inwards, upwards, and backwards. I have practised both this method and that of Dr. Morison on many patients. In stout people Dr. Ewart's method will be found almost useless unless the operator has abnormally large hands. The relief afforded is undoubted but I cannot say that I have found the treatment greatly to lessen the number of attacks.

I am, Sirs, yours faithfully,

J. SIDNEY PEARSON, M.B. Cantab.

Sydenham, Nov. 28th, 1905.

THE ESSENTIAL CONDITIONS OF STEAM DISINFECTION.

To the Editors of THE LANCET.

SIRS,—It is not a desire to have the last word that prompts me to answer Dr. J. C. Thresh's last communication but rather a wish to arrive at a solution of the problem under discussion. Dr. Thresh shelters himself behind the apparatus in which he is interested. I do not blame him. He is perfectly right when he declares that a misunderstanding exists between us. He believes that a current of non pressure steam which takes 20 minutes to penetrate 16 folds of blanket and at the expiry of another 20 minutes fails to kill anthrax spores enveloped in the blanket is as certain in its action as pressure steam which penetrates in six minutes and kills anthrax spores in 12 minutes. It is too late in the day to declare that the apparatus designed by him was only intended to deal with the pathogenic organisms of diphtheria, typhoid fever, and scarlet fever. I was always under the impression that steam disinfectors were capable of destroying any pathogenic organisms and he must know that among the diseases communicable to man anthrax is one. I fancy the omission of small-pox from the list given by Dr. Thresh is a *lapsus calami*. Moreover, anthrax has always been adopted as the standard organism for carrying out steam disinfection tests.

It will not do for Dr. Thresh to taunt Mr. Defries and myself regarding our strong advocacy of thorough air expulsion. Koch's dogmatic assertion, quite unfounded, as has been proved over and over again, is largely made use of in connexion with an apparatus which is familiar to Dr. Thresh in order to discount pressure steam. Surely then those of us who know why pressure steam excels its low pressure rival have a perfect right to indicate wherein the secret of this superiority lies. If the person supervising a certain high pressure steam disinfector omits the expulsion of air he may have non-disinfection and may leave fleas uninjured; I could specify the apparatus to which Dr. Thresh alludes but, to apply the *tu quoque* argument, if the low pressure attendant is in a hurry and expects to do his work in a short time the disinfection will be an absolutely negative one.

I am, Sirs, yours faithfully,

W. ROBERTSON, M.D. Glasg., D.P.H.,
Medical Officer of Health.

Public Health Office, Leith, Nov. 27th, 1905.

To the Editors of THE LANCET.

SIRS,—In the interesting correspondence which for some weeks has appeared in THE LANCET between Mr. Wolf Defries and Dr. W. Robertson on this subject I notice in the letter of Dr. J. C. Thresh in your issue of Nov. 18th the following statement: "In my long experience I have never known a machine used for disinfection after anthrax."

It may interest Dr. Thresh to know that it is my practice in Bradford to disinfect by means of steam all textile articles which have been soiled by persons suffering from anthrax either of the internal or external form. Voluntary notification of anthrax was established in Bradford some four years ago and since then infected houses have been visited and materials known to be infected have been disinfected. I am, Sirs, yours faithfully,

Bradford, Nov. 28th, 1905. W. ARNOLD EVANS.

THE INVERSE RELATIONS BETWEEN PYREXIA AND GOUT.

To the Editors of THE LANCET.

SIRS,—Dr. Francis Hare, in an interesting letter on the above subject in THE LANCET of Nov. 25th, p. 1575, kindly refers to details in a short article of mine in a previous issue headed "A Case of Diphtheria in a Patient 79 years of age with Subsequent Freedom from Old Gouty Symptoms." Does Dr. Hare attribute the inverse relationship between acute disease and gout to the pyrexia alone, no matter from what disease the pyrexia may have arisen? In the case of diphtheria mentioned there was a rise of temperature on the second day only of my attendance, it being no higher than 101° F., and had dropped to normal by the next morning. I referred in the same article to a case of acute recurrent gout in which freedom from symptoms had been established for three years after an attack of pneumonia. In both of these cases transient albuminuria existed at the height of the attack. It does not seem quite clear to me why the previous pyrexia of the repeated acute attacks of gout had not a salutary effect such as had followed the pneumonia unless it be that, in addition to, or apart from, the pyrexia, there may be a specific antidote to gout in some of the acute febrile diseases, or is it that pneumonia being a disease which runs a definite course, in it combustion is not retarded in spite of treatment? The treatment, however, in the case of diphtheria was rapidly effective and the slight rise of temperature was checked by the antitoxin neutralising the poison.

I am, Sirs, yours faithfully,

Belgrave-road, S.W., Nov. 26th, 1905. JOSEPH BIRT.

POSTURE IN EXAMINATION OF THE HEART.

To the Editors of THE LANCET.

SIRS,—I am grateful to Dr. A. Morison for emphasising the importance of the changes which occur with change of posture in the physical signs of the normal heart and for drawing my attention to his own very interesting book which I am sorry I have not read till now. I see, however, no reason to change the passage which he alludes to—viz., "The change, however, in the width of dulness is strikingly constant, so much so that it seems curious that it has not been observed before." This change was a widening of the normal cardiac dulness when the recumbent was changed for the upright position. The passages which Dr. Morison quotes from the writings of Dr. F. M. Latham and Dr. Octavius Sturges have nothing whatever to do with this, and I cannot see how Dr. Morison's own figures can be described as "essentially the same as mine." Neither Fig. 17 (p. 19) nor Fig. 22 (p. 33) (the two which illustrate the influence of posture) is taken from a normal heart; Fig. 17 does not show the width at all in either posture and Fig. 22 omits the leftward limit of dulness in the recumbent posture;

moreover, in both figures the upper limit of dulness is further from the clavicle in the recumbent posture than in the erect, which is the reverse of what I find to be the case in the great majority of normal cases and have indicated in my figure.

I can find no reference in Dr. Morison's book to changes in the normal heart sounds produced by change of position. I gladly welcome Dr. Morison's kind support but I see no reason to doubt that the facts which I have brought forward, both as regards the dulness and the sounds of the normal heart, are new. I have searched in vain for them in the works more likely to refer to them. Had it been otherwise my paper would not have been written.

I am, Sirs, yours faithfully,

Exeter, Nov. 27th, 1905. W. GORDON.

THE PATHOLOGY, AFFINITIES, AND TREATMENT OF SO-CALLED BLEEDING POLYPUS (DISCRETE ANGEIOMA) OF THE SEPTUM.

To the Editors of THE LANCET.

SIRS,—In the second part of my paper in THE LANCET of Nov. 25th two errors occur which I shall be glad if you will allow me to call attention to. On p. 1537, left hand column, line 30 from the bottom, for "least defined" should be read *best defined*; and in my acknowledgment to the artist for her dexterity, for "Mr." should be read *Mrs.* Taylor.

I am, Sirs, yours faithfully,

Harley-street, W. L. HEMINGTON PEGLER.

THE PRESENT STATE OF MEDICAL PRACTICE IN THE RHONDDA VALLEY.

To the Editors of THE LANCET.

SIRS,—"X. Z.'s" letter in THE LANCET of Nov. 25th is not, in my opinion, calculated to give to the profession at large a correct impression as to the condition of affairs in the Rhondda Valley. As one who has had some years' experience as an assistant in colliery practice I feel that my position justifies me in offering an opinion on the subject. Quite recently I have, though I am not one of those "who have not been successful in obtaining a colliery appointment," settled down with the object of building up a private practice in the valley. I find my position at the outset to be one of considerable difficulty. Although I called upon the medical men holding colliery appointments in the immediate neighbourhood to explain that my objective was a private practice pure and simple and that I had no intention of taking any appointment whatsoever, yet my call has not in any instance been returned. I have discussed the matter with several personal friends, holders of colliery appointments, and they unanimously say, "You cannot expect them either to return your call or to meet you." The reason they offer is, "They fear you will undermine their position with the workmen." Now I, Sirs, fail to understand why I should be thus condemned upon no evidence whatever. My grounds for believing that it is possible to build up a practice without stooping to the tactics described by "X. Z." are as follows. Within a radius of three miles of my surgery there is a population of at least 40,000. Within that area there is no resident private practitioner. It is reasonable to suppose that even in a colliery district there will be found a sufficient number of persons engaged in trade and avocations not directly connected with the pits to provide a considerable *clientèle* for a private practitioner. Were there no such thing as contract practice I am convinced that the number of practitioners in the neighbourhood would be increased threefold. Yet although I intend to observe, in the spirit as well as in the letter, the strictest rules of professional etiquette, I must reconcile myself to the fact that in spite of any efforts of mine to foster that feeling of friendship, as essential as it is rare, among members of our profession, such efforts are from the commencement doomed to failure. The colliery surgeons look upon the coalfield and all that therein is as their exclusive property—from a practitioner's standpoint. Their sway has been for ong undisputed and would have remained so had they ceen all that "X. Z.'s" fancy paints them. From my own experience I say definitely that the collier under the present *régime* does not receive at the hands of the colliery surgeons treatment which can be described as either just or generous. The rate of income being assured the whole object appears to be to conduct the practice at the lowest possible expense. This economy applies to both drugs and assistants and accounts for the fact that until very recent years unqualified assistants were thick upon the ground in the Rhondda Valley and qualified assistants, like angels' visits, few and far between. At the present moment, and I fully appreciate the gravity of this statement, I know of men, members of the British Medical Association and of the local Ethical Society, who employ unqualified assistants. These men, nominally dispensers, do pay visits and are thought by the patients to be, and are called, "doctors." "X. Z.'s" statement with regard to the money made by colliery surgeons is, in my opinion, grossly misleading. They all, without exception, make an excellent competency—most of them make considerably more. Some of them to my knowledge are sufficiently well paid to devote an annual sum as payment to those through whose influence they have obtained their appointments, the recipients of this payment being in a number of cases the representatives of former holders of the practice or the former holders themselves. I speak that I know, and I say that the average earnings of the colliery surgeons far exceed those of the average general practitioner in this country.

It is with pleasure that I find that in spite of "X. Z.'s" faulty premisses his conclusion is so accurate. It is absolutely true that the collier "can afford to pay *2s. 6d.* for a consultation and medicine and *5s.* for a visit and medicine." I go further and say that in addition to the poundage paid to the colliery surgeon—aptly called by one of your earlier correspondents the monopolist—he frequently does pay such fees to a private practitioner.

I am, Sirs, yours faithfully,

Nov. 27th, 1905. VERAX.

THE ORGANISATION OF THE MEDICAL PROFESSION IN SWITZERLAND.

(FROM OUR SPECIAL COMMISSIONER.)

(*Concluded from p. 1577.*)

A Uniform Agreement with all the Friendly or Benefit Societies.—Uniform Tariff of Fees and Free Choice of Medical Adviser.—Medical Contract with the Geneva Municipal Council.—A Sliding Scale of Fees.—The Effect of the German Compulsory Insurance Law on the Medical Profession.—The Swiss Legislature and the Swiss Medical Chamber.

THE Association of Practitioners of the Canton of Geneva (Association des Médecins du Canton de Genève) has not as yet succeeded in grouping together all the medical men of the district. According to the official list published by the Department of Justice and Police there were 203 medical men in the canton of Geneva during the year 1904. This, however, was an error, the real number being 197. In the course of the year 1904 there have been one death, five departures, and 12 new authorisations to practise, so that it was only at the end of the year 1904 that there were 203 practitioners in the canton. Of this number 122 were enrolled in the Association of Practitioners. It can be said that of the total number of medical men authorised to practise in the canton 60 per cent. are in union. This has been sufficient to settle in a satisfactory manner the conflict with the friendly societies and medical aid associations. Considering the number and variety of these societies it was no easy matter to establish a uniform understanding. It is true that 56 societies are federated but 34 are not. Then a new society has just been constituted composed of persons who are not natives of the canton and entitled the Italian Anti-Clerical Society of Mutual Help. Thus there are altogether 91 different friendly or benefit societies, all proposing to provide medical aid for their members. Many are trade societies, such as the unions of the jewellers, bakers, watchmakers, hatters, tinsmiths, gardeners, café waiters, locksmiths, tailors, &c. But there are also benefit societies composed of workers and small

tradesmen of different trades, such as the National Catholic Society, the Blue Cross Society, the Geneva Physical Development Society, the Society of the Young Men of our Lady, the Ladies' Mutual Union, and the Union for the Workmen's Tour of France. Indeed, Switzerland is a great country for the organisation of societies of all sorts and descriptions. To keep these societies together considerable use has been made of medical men. In many cases members continue to pay their subscriptions, not so much for the sake of the society but so as to secure medical assistance in case of ill health.

In many English towns the same story might be told and the British medical practitioners have also formed unions to cope with the difficulty. In some instances they have obtained notable improvements in the terms of contract work. These endeavours have been described at great length in these columns. But nowhere has such a clean sweep of the whole system been accomplished as at Geneva. Here the system of weekly or annual payments is completely abolished. The members of the benefit societies may pay weekly subscriptions, which may be large or small; the medical practitioner is in no wise concerned with the internal management of these bodies. He is paid for the work he does, and this according to a fixed tariff. Indeed, the contract system is reduced to its most simple form; it only consists of an agreement as to what the fees shall be. The first agreement was that drawn up by the Association of Practitioners on the one side and the Federation of the Benefit or Friendly Societies on the other. The tariff then accepted stipulates that for a simple consultation at the practitioner's house the fee shall be 1 franc, or 10*d*. Within the limits of the commune the fee for a visit to the patient's house is 1½ francs in the daytime and 3 francs at night. If the patient lives outside the district an extra charge of 60 centimes in the day and of 1 franc at night is made per kilometre. If there is a wound to dress or a minor operation to perform there is a supplementary charge of half a franc. When a candidate applies for membership to one of the societies and must for this purpose have a medical certificate he has to secure the printed formula issued by the society in question and present it to one of the medical officers whose name appears on the accepted list. For filling up the certificate the candidate must himself pay the medical officer a fee of 2 francs. Naturally the members of the societies must only call at surgery hours; and, except in cases of urgency, must give notice before 9 o'clock in the morning if they desire the medical officer to call at their homes. On the book or membership card of every member of the federated friendly societies are inscribed the names of the fully qualified medical men who are allowed to practise in the canton of Geneva and who are willing to attend upon members at the rates specified in the tariff. There is a special clause in the agreement to the effect that no name shall be put on this list save that of a fully qualified practitioner.

All members of the friendly societies must be careful when they call on a medical officer to make it quite clear that they belong to such a society. They should show their card of membership and also a special paper which they should obtain from their society and on which the medical officer can make an entry giving the date of the consultation and other necessary details, so that this document may serve to check the account. The practitioner's account is to be sent in and settled either at the termination of the treatment or at the beginning of every quarter. But in cases of urgency or where the patient has neglected to bring the form from his society the medical practitioner's account must be accepted as sufficient evidence. Then there comes a very important rule. The tariff is drawn up for the benefit of workmen and poor people generally, but if the medical officer finds that he is called upon to attend a patient who is obviously not a poor person he can resort to Rule 11 of the agreement. By this rule he has the right to refuse to attend on the terms of the tariff. But he must at once and at the first visit notify the fact to his patient and there and then come to a personal agreement as to what extra charge he thinks that he has the right to make. It is the societies and not the patients who are responsible for the payment of the medical fees, each society arranging how best it can raise the necessary funds. The contract signed individually with each of the 34 societies which do not belong to the federation of friendly societies is almost identical with that already described.

There remains yet another form of contract work for which provision had to be made. There are the civil servants and persons in the employ of the municipality who earn more than workmen and yet are not able to pay high fees. A convention has therefore been concluded with the town of Geneva for all persons employed by the municipality who do not earn more than £144 a year. The charge for the consultation is 2 francs, for the visit 3 francs, and from 9 o'clock at night to 7 in the morning 8 francs; and for examinations and health certificates for candidates 5 francs. Then another contract has been drawn up for those civil servants whose income exceeds £144 per annum. For them the fee is 2 francs 50 centimes, or 2*s*., at the surgery, and 4 francs for the visit at the patient's home. The fee for night visits is 10 francs (8*s*.). The town of Geneva undertakes to distribute every year to all who are in its service a list of the medical men who have consented to attend them according to the above conditions. All employed in the service of the town have a paper given to them which they must show when applying for medical advice and the medical practitioner must write on it what he has done for the patient. The medical men send their account to the directors of the service in which the patient is employed and the town pays the entire cost of the treatment for three months. Such are the conditions which the medical men of the canton of Geneva have by their united action succeeded in establishing. This has been done in a comparatively short time and is very much more satisfactory than the conditions of contract work which prevail in most of the English towns. Perhaps, however, it will be said that there are economic forces at work in Switzerland which do not exist in England. Nevertheless, this would not suffice to explain the difference. Undoubtedly the position is not quite the same but on the whole it is very similar.

The one notable difference between Switzerland and Great Britain, so far as medical practice is concerned, is the fact that the Swiss legislature has already discussed schemes of universal compulsory insurance. Also, as Switzerland is so close to Germany it experiences more keenly the reflex influence of the enforcement of insurance throughout the German Empire. Thus Switzerland incurred a great risk of being overrun by what is described as "a German proletariat of Jew doctors." This numerous class of poverty-stricken but fully qualified practitioners sprang into existence in the wake of the Bismarckian laws on the insurance of the workmen. They thought that they would be able to obtain posts at fixed salaries for the carrying out of the insurance law. Of course, many of these aspirants were disappointed and began to look abroad for employment. It was to keep them out of Switzerland that a law was enacted preventing foreigners practising in Switzerland unless they passed the Swiss examinations in the three Swiss languages—that is to say, in Italian, in French, and in German. In spite, however, of these precautions the medical profession in Switzerland, as in England, is becoming overcrowded. For instance, in Geneva in 1860 there were 83,876 inhabitants and 50 practitioners—60 practitioners per 100,000 inhabitants. In 1880 there were 93 practitioners for 100,000 inhabitants, the population being then estimated at 99,712. During the following ten years the proportion only increased to 96 per 100,000. But in 1900 there were 119 practitioners per 100,000 and in 1904 no less than 142 per 100,000 inhabitants. Thus in 44 years the proportion of medical practitioners has increased from 60 to 142 per 100,000 inhabitants or, to put it differently, there was in 1860 one practitioner for every 1660 inhabitants, in 1890 one for every 1040 inhabitants, and in 1904 one for every 710 inhabitants.

These figures show very clearly how necessary organisation has become. In regard to such endeavours it should be observed that by the side of the Association of Practitioners of the Canton of Geneva, with its 122 members, there is also the Geneva Medical Society which has 98 members. Of the latter 71 belong to both societies, so that in all there are 149 different practitioners belonging to one or the other of the two organisations. If from the remainder we deduct those who occupy official posts and are not in general practice it may be said that a very large majority of the medical profession in the canton of Geneva is organised. From the very first these organisations have fought for the freedom of the patient and the freedom of the practitioner. So far back as 1894 the Geneva practitioners, as the basis of their action, adopted the following motion:—

The insured shall preserve the liberty to consult the medical practitioner he shall himself select from among those who are

established in the locality and who shall have accepted the conditions laid down in the tariff adopted by the contracting parties [medical aid associations, benefit societies, &c., on the one side and the medical union on the other side].

For this principle the medical men of Germany are also struggling and at Leipsic and at Cologne they have recently won for the insured workmen the same freedom of choice.

The Association of Practitioners of the Canton of Geneva was founded in 1892, when a number of practitioners were invited to meet by Professor A. H. Vaucher. Some 55 gathered together in the Senate Hall of the University on Feb. 23rd. The fact that so many responded to this first appeal showed that the economic pressure was keenly felt. Professor Vaucher insisted that while much was expected from the medical profession no heed was taken as to whether the medical man lived or starved. It was necessary, therefore, that they should organise so as to acquire the necessary strength to make their voices heard. By the following month of April statutes had been elaborated, the association formed, and 50 members enrolled. There were at first much hesitation, distrust, and opposition. Many thought that the old Medical Society of Geneva should suffice for all purposes and could not understand that new economic conditions necessitated new organisations and new policies: the battle of the clubs had to be fought and a minimum fee established and the old medical societies knew little or nothing about such matters. Then there are legal questions affecting the medical profession and notably the Bill introduced in the Swiss Federal Parliament for the establishment of compulsory insurance throughout Switzerland. That such a law, revolutionising the status of the medical practitioner, should be passed without obtaining the opinion of the medical profession would obviously be most unfair. Yet how can such an opinion be expressed if there is no representative organisation of the profession? Therefore, although the medical societies are differently organised in the various cantons, they have been grouped together. There is the Central Medical Society which is a sort of federation of all the local medical societies established in the German- and Italian-speaking portions of Switzerland. Then there is the Société Médicale de la Suisse Romande that federates all the local medical organisations of the French-speaking cantons. These two societies have formed a joint committee to which every 50 medical men in union can send one delegate. This assembly of delegates nominates what is called the Swiss Medical Commission and this Commission consists of five members from the German- and Italian-speaking and two from the French-speaking cantons of Switzerland. The Swiss Medical Commission is therefore able to speak on behalf of the entire medical profession of the country. Dr. A. Jaquet is a member of this Commission and its general secretary. It will be remembered that Dr. Jaquet represented Switzerland at the Conference of the International Medical Press Association when it met at Berne last April. Dr. Jaquet on that occasion expressed his conviction of the desirability that the medical press of all countries should deal more extensively with economic questions—such as club practice, compulsory insurance, and other matters that were affecting the profession. In the face of all the facts just related it is easy to understand how Dr. Jaquet's personal experience prompted and justified his proposals.

So well is the medical profession organised in Switzerland that the Government now makes it a common practice to consult the profession in any matter in which its support or approval is needed. The Government communicates with the seven members of the Swiss Medical Commission. It often happens, however, that the matter is of such importance that the Commission hesitates to incur the responsibility of expressing an opinion. In that case it convokes the delegates of the two great medical societies and the assembly of these delegates constitutes what is called *La Chambre Médicale*, an institution which, as its title suggests, bears some analogy to the Chambers of Commerce. Though this organisation is not four years old the Government has availed itself of its services on several occasions. Thus, for instance, Switzerland, with its 22 cantons, each having a wide measure of home rule, has a great variety of penal codes, which in these days of rapid communication and frequent change of domicile is very inconvenient. Consequently there is now a proposal before the Federal Council to unify the penal code throughout the confederation. Of course, this affects the medical profession; therefore the project has been submitted to the Medical Commission. Then last February a petition was sent to Parliament by the Medical Chamber on the question of workmen's insurance. When the Bill for the compulsory insurance of the working classes was before the Swiss Parliament the medical profession was not organised and could not give voice to its opinions and interests. Fortunately for the medical profession, when a referendum was taken the Swiss people voted against the project. They thought the Bill was too servile a copy of the German law and therefore not suited to a free country like Switzerland. They objected to an army of bureaucrats who would govern one-third of the population; but the medical men could not move in the matter because they were not organised. Now, however, they have been informed that when the next project for compulsory insurance is brought forward they will be consulted at the earliest stage of the proceeding.

Great fear exists that the evils from which German medical men suffer will be introduced into Switzerland. It has been calculated that under the law for compulsory insurance the German medical men have sometimes to see as many as 200 patients in a day and only receive seven farthings per consultation. That is why the medical practitioners of Leipsic had to form the Leipsic Verband or fighting union with strike funds. It was only after an ardent struggle that the medical men won their freedom and that of their patients. The patients can now choose their own medical attendant and the latter is no longer at the beck and call of the managers of the insurance funds. To obtain any such advantage in Germany was especially difficult, because the profession is overcrowded. As already stated, a large number of persons qualified as medical men thinking regular employment would be easily obtained under the compulsory insurance law. From 1876 to 1886 the population in Germany increased 9·7 per cent. and the number of medical men increased 15·4 per cent. In 1883 the law on compulsory insurance was adopted. From 1887 to 1896 the population increased 11·5 per cent. and the number of medical practitioners increased 63·8 per cent. As a result there were at Berlin 1946 medical practitioners in 1901. Of these medical men 529 had incomes varying from £45 to £150. Then 273 received from £150 to £250 and finally 785 had incomes rising from £250 up to the maximum of £18,750. But this calculation includes whatever private income these practitioners may have also possessed. It should further be noted that 107 fully qualified medical men at Berlin paid no tax whatever because they had no income and that 252 had such very small incomes that they could not be made to pay anything. Thus, out of the total number of medical practitioners, 18·5 per cent. were too poor to pay any tax, living in the utmost misery and eking out their existence by directing envelopes or by any other work that they could procure. It will be readily understood how, in the face of such statistics, any proposal for a law on compulsory insurance is viewed with apprehension by the medical profession. Of course, it does not follow that what occurred in Germany will occur in every other country where a similar law is enacted. But this might happen if the warning arising from the German experience is disregarded. This does not mean that the medical profession in Switzerland is opposed to compulsory insurance. Opinions are divided on the point, but there is a strong objection to the conversion of medical men into mere State officials or civil servants. Therefore they ask that, whether insurance be compulsory or, as at present, voluntary, the patient shall be free to select his own medical attendant and that the medical practitioner shall not be paid a salary but a fee for each consultation given. In Switzerland it was proposed that all whose income or earnings did not exceed £100 a year should be forced to insure. But there are a number of villages in Switzerland where there is not a single inhabitant in receipt of as much as £100 a year. Also, as the revenue is in part in kind the position of these people cannot be estimated in cash and while their revenue in money is small they may nevertheless be able to pay to a medical attendant the usual fees. It will be seen, therefore, that there are many complications and how necessary it is that no sweeping legislation of this description should be enacted without ascertaining, and this in a very full and detailed manner, the views of the medical profession. In Switzerland this can now be done and the Swiss medical men must be warmly congratulated upon the great success which they have achieved in the work of organisation.

THE PUBLIC-HOUSE AS A FACTOR IN THE SPREAD OF DISEASE.

(FROM A CORRESPONDENT.)

DURING the past two or three years there has been a considerable amount of discussion in the medical papers of Great Britain and of the United States in regard to the rôle played by various social factors in the dissemination of pulmonary tuberculosis. In most cases the factors which favour the spread of pulmonary tuberculosis are those which tend to aggravate the evils of many other infectious diseases, and this will be seen to hold good in the case of the public-house.

The public-house appeared to me to play so prominent a part in the lives of a large number of the inhabitants of a certain poor part of London that I resolved to make a "pub" to "pub" visitation that I might see how far the conditions at the various "Blue Dragons," "Black Swans," and "Royal Georges," whose flaring portals invite the passer-by at most of the corners in the district, were likely to conduce to the spread of disease. There is certainly much disease in the neighbourhood and there is certainly much drinking, but these notes do not attempt to deal with the connexion between the two. My tour of inspection was not taken from temperance motives and the temperance question entered in none of its far-reaching aspects into my speculations. Putting entirely aside considerations as to whether the person who drinks is more susceptible to pulmonary tuberculosis than he who is a teetotaler, I went to look at certain of the places where drink is dispensed to see whether, however wholesome and salutary the fluid supplied, the conditions of supply were not in themselves dangerous to health. I had been into a public-house in a poor locality before in my life, so that I may say at once that I expected to find much that would be offensive to the modern medical eye but I did not expect to find quite such a state of affairs as was revealed to me. The result of my little tour has been to strengthen my preconceived ideas of the ordinary public-house as a menace to health both from a medical and a sanitary standpoint. The community has a right to demand that the elementary laws of hygiene should in any place of general resort be conformed to in such a way that health is not endangered to any marked extent, but it is my conviction that in the majority of instances undue laxity is observed in the attempt to safeguard the health of the frequenters of bars. The question of sanitation is almost wholly disregarded in the management of the public-house. Saturday night is naturally the time when the public-house may be observed under the worst conditions. It is the time, however, when those in charge of public-houses should make their most strenuous attempts to protect their customers. As far as I have been able to find out they do nothing of the sort.

The first "house of call" that I entered was crowded to suffocation pitch with a throng of men and women packed together near the counters in compact masses. I went into what is called a "private bar." These "private bars" form an especially objectionable feature of London public-houses of the lower class. The bars are merely narrow boarded compartments opening on to a common counter and are presumably provided for the convenience of women or of those who do not wish to drink in a public-house in the full sight of their fellow men. It stands to reason that in so confined a space, even when the public-house is not full, it is impossible to avoid coming into close contact with other visitors. Those in front having obtained their needs squash back to permit later incomers to reach the counter and the result is a thorough rubbing of shoulders with all sorts and conditions of folk regardless of their sanitary condition. Of all the diseases or affections which may be contracted with particular ease and frequency in the public-house pulmonary tuberculosis takes the first place, both on account of the gravity of the malady and of the conditions prevailing which favour its propagation. THE LANCET on several occasions during recent years has drawn attention to the probability that pulmonary tuberculosis is spread considerably by the agency of public-houses, and from my cursory observation—no more than cursory observation is needed—I am sure that it must be so. In the lower class of taverns the floor is usually strewed with sawdust which is expectorated upon freely. The floor thus becomes impregnated with sputum; the sawdust when dry is kicked about by the feet of visitors until the air is charged with the floating particles. The ventilation is usually vile, the heat very great (warmth, be it remembered, is one of the special inducements for poor folk to enter a public-house), and sanitary organisation is absent. It goes without saying that consumptives frequently resort to these places, where all the conditions by which infection is most easily conveyed are in full working order.

The conditions of dirt, overcrowding, heat, and disorder which I noticed in the first public-house that I entered were all repeated in the others that I visited. There were the same evil smells, the same stifling atmosphere, the same large intermixture of sick people with the usual *clientèle* of drinkers. And the usual *clientèle* appeared to the casual eye to consist always of about a third who generally wanted refreshment, a third who habitually craved for drink, and a third who were using a bar as a place of social resort and were doing business or conversing with their friends. Some of these latter were probably *habitués* and equally probably drank too much; others were accidental visitors, for it must not be forgotten that if a poor man desires to give a mate social entertainment the bar offers him his only chance. He cannot invite a friend round to his club, and it would be well if temperance advocates (possibly members of well-appointed clubs) would sometimes remember this when they inveigh against the immorality of the tempter who in the course of a casual chat says, "Have a drink." Owing to the similarity of the conditions that I observed in public-house after public-house the notes of each particular visit would make monotonous and purposeless reading but I came to the conclusion (as, I am sure, everyone would have done who had received a medical training) that the public-house bar plays a prominent part in the spread of pulmonary tuberculosis and that therefore the advocates of temperance principles may claim to be on the right tack here. Exactly how much of the prevalence of pulmonary tuberculosis is due to the public-house cannot, of course, be ascertained, but the returns of the English Registrar-General for 1903 showed that public-house servants were especial victims to the malady, a fact which can surely be construed as a reflection upon the sanitary organisation of their environment. When a small class of the community is found to be particularly prone to a very general disease the point always merits investigation because of the importance of discovering foci. It would be quite outside my purposes in writing as well as quite unnecessary in the columns of THE LANCET to expatiate upon the prevalence of pulmonary consumption. The report of the medical officer of health of the City of Westminster relating to the third quarter of the year 1905 shows that the death-rates per 1000 of persons living in Westminster in the period mentioned were for all causes 12·0 and for phthisis 1·11. There is nothing abnormal about these figures and they prove nothing so far as any indictment against public-houses goes. But they show sufficiently the number of chances that there must be that a certain proportion of the *clientèle* of every public-house in a city will be persons suffering from a communicable disease. And the conditions favourable to intercommunication are all present, atmospheric pollution in particular. Flügge some time ago made investigations in regard to the identification of salivary bacteria and showed that when a large number of individuals are gathered together indoors in a confined area the air is full of these bacteria. THE LANCET, in its issue of Sept. 17th, 1904, p. 841, commenting upon these conclusions, pointed out the importance of the bacteriological study of indoor air in relation to the spread of infectious diseases. If the air of a crowded public-house were to be examined bacteriologically the quantity of salivary bacteria would certainly be very large. Next only, perhaps, to the public elementary school there is no agency so capable of spreading disease as the public-house.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Birmingham Medical Mission.

THE annual report of the above mission has lately been presented. From it I gather that the total number of cases dealt with during the year was 4502, whilst 19,548

attendances had been made. Since the mission was founded 30 years ago over 500,000 poor people have been helped in various ways. The financial statement disclosed receipts amounting to £1671 13s. 8d. and payments to £1632 14s. 3d., leaving a bank balance for the year ending June 30th last of £38 19s. 5d. The resignation by Dr. Thomas Savage of the presidency of the mission was received.

South Staffordshire Small-pox Hospital.

On Dec. 4th the new small-pox hospital, which has been erected for the use of a number of authorities in the South Staffordshire area, will be opened for the reception of patients. The hospital will be controlled by a board which, on the formation of a district, was appointed under an Order of the Local Government Board in 1903. The area embraced consists of the boroughs of Wolverhampton and Smethwick and the districts of Amblecote, Bilston, Coseley, Darlaston, Heath Town, Rowley Regis, Sedgley, Short Heath, Tettenhall, Tipton, Wednesfield, and Kingswinford. The population of these districts at the last census was 337,387, the rateable value was £970,877, and the area was 34,183 acres. The hospital has been erected on a site at Moxley. The site is bounded on two sides by the canal and is almost entirely isolated from dwelling houses; it includes an area of 56 acres. The present buildings will provide accommodation for 40 patients and for a sufficient staff of nurses and officials, including a resident medical man, to look after a larger number of patients should an epidemic arise. The hospital, apart from the administrative block, consists of three pavilions. No. 1 and 3 pavilions will accommodate 16 patients each and No. 2 pavilion, which is an observation block for doubtful cases, will accommodate eight persons. Each of these pavilions has two separate wards (male and female) with a nurses' kitchen separating them. The three pavilions are connected together, and also to the administrative block, by covered ways for use in inclement weather. Accommodation for infected and disinfected clothing, a disinfector, destructor, and mortuary are provided. The grounds in the building area have been laid out in a simple manner with shrubs and trees and the remainder of the site is being planted with trees by the Midland Reafforesting Association. The cost of the work, including the purchase of land, will be about £18,000.

Staffordshire Sewerage Schemes.

A Local Government Board inspector has lately held a public inquiry with respect to an application by the Stafford rural district council for loans of £5000 and £4500 to enable it to carry out works of sewerage in the parishes of Castle Church and Tillington. During recent years large quasi-urban districts on the boundary of the borough of Stafford have sprung up and for some time the borough authorities have complained of the pollution of the boundary brooks by the flowing therein of sewage from these residential districts. Eventually a statutory notice was served upon the rural district council under the Rivers Pollution Act and after much inquiry and discussion of various systems of sewerage the rural district council eventually accepted a proposal made by the corporation that the districts should be sewered on the same plan as the borough had adopted and that the council should pay the corporation £150 a year for the reception and treatment of the sewage. Application was then made to the Local Government Board for power to raise the necessary money. At the public inquiry the principal objection was that the scheme was too extensive. The inspector will report to the Local Government Board in due course.—The Fenton urban district council has been successful in obtaining an order staying the operation of an injunction granted in January, 1903, until January, 1907. The action was brought to restrain the pollution of the Trent by sewage and an injunction was granted by which the district council was compelled to carry out the works necessary to obviate the nuisance. These works are now in process of construction. It was stated that from 18 to 20 injunctions had been granted against local bodies in the Potteries and over £150,000 had been spent in trying to get rid of the nuisance but the Trent was still foul.

Water Undertakings.

The South Staffordshire Waterworks Company is about to enter upon important works at Burton-on-Trent. Owing to its elevation the district known as Winshill on the east bank of the Trent has for many years suffered from an indifferent water-supply. At the last meeting of the health committee a communication was received from the company inclosing an agreement whereby the latter promise to construct works at Winshill at an estimated expenditure of £6500 provided that the corporation contributed £1000. These terms were accepted by the committee. The remedy will take the form of a water tower.—In continuation of the policy already laid down by the water committee of the Birmingham city council a further area of 74½ acres on the watershed in the Elan Valley is being planted. The total area now under plantation is about 310 acres.

The Feeding of Underfed Children.

The central relief committee of the Birmingham board of guardians has decided to carry out itself the provisions of the Relief (School Children) Order recently issued by the Local Government Board with reference to the feeding of underfed children. The classes which will be dealt with by the guardians are: (1) children of parents permanently impoverished, (2) children of people who could provide but neglected to provide food for them, and (3) cases of temporary distress. Mr. George Hookham and the Birmingham Schools Cheap Dinner Society will undertake to feed the fatherless children and children who have been deserted for whom no provision has been made in the Local Government Board Order.

Nov. 28th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Recruiting in Manchester.

OPINIONS as to the deterioration of race as affecting our own people, especially in the large towns, vary considerably, some maintaining stoutly that it is a myth, while others point to the ill-developed wastrels at our street corners in proof of their contention that we are a decadent race. This test, however, is only applicable to a section, though a numerous section, of the people and not to those whose heredity and environment have been more favourable. Looking to the working class, that from which most of our recruits come, the result of recent returns shows that in this district there is no improvement on the deplorable state of things revealed a year or two ago. During the year ending Sept. 30th, 1904, 5038 men offered themselves for enlistment, and of these only 1738 were finally approved. Of the rest, 1962 were rejected by recruiters and 1522 were sent away as physically unfit. 69 per cent. were rejected as below the physical requirements, for "flat feet," or for defective teeth. The militia returns for the same year show 5150 applications for enlistment with 1600 finally approved. The militia recruits are enlisted between the ages of 17 and 35 years and the line between 18 and 25 years, giving the former a wider field, while the examination is less strict. For the present year there were 4554 applications for the line, of which only 732 were accepted. For the militia the figures were 3813 applicants, of whom 599 only passed the physical and medical tests. No improvement has taken place since 1899, when 11,000 men offered themselves for enlistment, 8000 of whom were rejected as physically unfit. Of the 3000 left a few over 1000 only could be put into the army, the remainder being taken into the lower grade of the militia. Only the other week on two days about 60 would-be recruits presented themselves at the Manchester office, of whom only four were found fit to serve. These figures, which could no doubt be supplemented by others from various industrial districts, show a deplorable state of physical inefficiency in the working-class population, which no one can contemplate without grave misgivings. "The stalwart breed of our peasants" is a thing of the past and the rare exceptions to this state of physical degeneracy are not to be found in the Manchester slums.

New Infirmary at Nantwich.

An important addition to the Nantwich workhouse hospital was opened about a fortnight since. It consists of a nurses' home and wards for 74 women patients.

"Christmas is Coming."

One of the signs of the advancing season is the annual discussion on the question of beer or no beer for workhouse inmates at Christmas. The Oldham guardians have early made up their minds and decided, by 11 votes to 7, against supplying beer to those in their charge at Christmas.

The Stockport guardians are going to allow Christmas beer, and one of them said at the last meeting that the inmates would have a better dinner than half of the ratepayers.

Margarine at Burnley Workhouse.

The Burnley board of guardians has decided to use margarine in the workhouse instead of butter. According to the analysis of the borough analyst the samples of that proposed to be used were quite as nutritious as the Irish butter supplied. The medical officer is, however, authorised to order butter when he thinks fit. The change is expected to save £300 a year.

Triangular Poison Bottles.

About a week ago a gentleman at St. Anne's-on-the-Sea was poisoned by liniment being given to him in mistake for cough mixture. The former was in a flat three-ounce bottle and, though properly labeled, in the dim light of the fire only, the wrong bottle was taken. The jury suggested that poisons should be dispensed in triangular bottles which the coroner and medical man approved. Mr. Benner writes on behalf of his fellow jurors to the *Manchester Guardian* in order to bring the matter before other coroners and the public, so that efforts may be made to bring about the required change in the law regulating the sale of poisons. This seems a desirable change, for such accidents are not very rare.

Anti-vaccinationists.

27 defaulters who had gone to prison—the nearest approach to martyrdom to which they could hope to attain—for not having their children vaccinated were released from Derby prison on Saturday morning last. 4000 people greeted their advent with "a great cheer" and they all marched to the Temperance Hall. Speeches were made and the occasion was no doubt "improved." Another demonstration was to come off last night with a Member of Parliament among the speakers. A good number of people think that we are decadent mentally as well as physically and no doubt they could bring forward much to justify their opinion.

Manchester Hospital Sunday and Saturday Fund.

The annual meeting of the Hospital Sunday and Saturday Fund was held yesterday. The Sunday collections realised £3539 7*s.* 11*d.*, a decrease of £87 4*s.* 9*d.*, and the Saturday Fund was £4328 0*s.* 3*d.*, a decrease of £18 6*s.* 11*d.* This is disappointing but the decrease is attributed to the trade depression felt during the year. The amount distributed was £7500, the same amount as last year. One item received was about £74, the proceeds of the letting of shop windows at the last Royal visit. Manchester and Salford still come far short of some other places as to these collections.

Bazaar for Convalescent Homes in Manchester.

For some time past efforts have been made in this district to provide self-supporting convalescent homes for workpeople, thus following the example of Birmingham and Leeds. In aid of this scheme a bazaar has been held with the result that more than £10,000 have been raised. The bazaar, which has been very successful, has not been the result of the efforts of the working classes only, for the cause was so evidently good that all sorts and conditions of men and women were glad to help.

Nov. 28th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Infantile Mortality in Cardiff.

IN his report for the third quarter of the year 1905 the medical officer of health of Cardiff, Dr. E. Walford, records the very low death-rate among young children of 120 per 1000 births, compared with 183 per 1000 in the 76 large towns, 282 in Rhondda, 221 in Merthyr Tydfil, 148 in Newport, and 129 in Swansea. The rate in Cardiff in 1904 was 144 per 1000. The small number of deaths from diarrhœa (37), giving a death-rate equal to 0·8 per 1000 per annum, accounts in great measure for the low death-rate among infants. The average diarrhœal death-rate in Cardiff during the third quarter of the past ten years was equal to 1·8 per 1000 per annum. Dr. Walford gives in the same report the results of inquiries which were made during the quarter by the woman inspector as to the nature of the food supplied to infants throughout the district. Of 167 infants visited within two months of their birth 76 were exclusively breast fed, 44 were given other food as well as the breast, and the remainder were fed upon cow's milk or condensed milk either alone or with other food. Of the 34 children under one year of age who died during the quarter from diarrhœa only three were exclusively breast fed and five were fed with other food as well as the breast, while the remaining 26 were given cow's milk or condensed milk either alone or with other food.

Treatment of Consumptives in Workhouses.

The open-air treatment of cases of consumption is now systematically carried out in the workhouses at Bristol and Bath. In his recently issued annual report Mr. E. B. Wethered, Local Government Board inspector, gives some details of the results of this treatment during the year 1904. At Bristol 85 cases were treated, of whom 25 died and four recovered. Of the remaining 56 there were four who left of their own accord, 24 were said to be chronic cases, nine were improved, and 19 much improved. Of the 67 patients treated in the Bath workhouse ten recovered, 21 died, 22 left of their own accord, and 14 remained under treatment at the end of the year. In his comments upon these figures Mr. Wethered remarks that although the total number of recoveries is small yet the spread of the disease is probably hindered when persons suffering from pulmonary tuberculosis are removed from their surroundings. It may frequently happen that children sleep in the same ill-ventilated rooms with consumptive persons and they thus run the risk of being affected in their turn and becoming a charge to the rates. It is a question how far a board of guardians is justified in giving out-relief in such cases, though this is constantly done in order to prevent the case coming into the workhouse.—At the meeting of the Exeter board of guardians held on Nov. 21st it was decided that a portion of the old infirmary should be utilised for the accommodation of consumptive patients.

Vagrancy.

In the same report Mr. Wethered, who has always given a considerable amount of attention to the question of vagrancy, animadverts upon the different methods of treatment adopted by various boards of guardians towards the tramps who visit their districts. The temptation to vagrancy, he says, is increased by the want of uniformity of treatment. The dietary also which is given at very many of the casual wards is so meagre that it forces a man to beg or causes him to become so weak that he is not fit for work if it is offered to him.

Royal United Hospital, Bath.

The Mayor, on Nov. 23rd, presided at the annual meeting of the Ladies' Working Association in connexion with the Royal United Hospital, Bath. The report stated that garments, bed linen, &c., to the value of about £300 had been given to the institution during the past 12 months, and in addition £22 had been given towards a cot in the children's ward.

Nov. 28th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal College of Surgeons of Edinburgh and the Diploma of "Member."

ON Nov. 27th the President and Council of the Royal College of Surgeons of Edinburgh received a deputation from the Association of Medical Diplomates of Scotland, who presented a petition praying for the addition to the existing qualifications of the diploma of "Member." The President, Mr. C. W. MacGillivray, undertook on behalf of the College to give the subject his best consideration. Fellows and Licentiates of the College who may desire to associate themselves with the petition are requested to communicate with Dr. David Walsh, 18A, Hanover-street, London, W.

Royal Medical Society of Edinburgh.

The first ordinary meeting of the above society was held on Nov. 10th, when Dr. J. M. Graham delivered his presidential address. After thanking the society for the honour that it had done him in electing him senior president for the year, Dr. Graham proceeded to trace the progress of medicine in Japan. Having shown the condition of the science prior to the revolution of 1868, he went on to compare it with the

present state of medicine in that country, and thereafter pointed out the causes of the great and rapid advance.—Dr. Stuart moved, and Dr. Wilkie seconded, a hearty vote of thanks to Dr. Graham for his interesting and able address.—The second ordinary meeting of this society was held on Nov. 17th, when Dr. Chambers delivered his presidential address. He first thanked the society for the honour it had done him in electing him one of its presidents, and then gave a short account of the state of the Medical Society of Edinburgh in the session 1855–56. Having first dwelt on the personnel of its presidents and members, Dr. Chambers described the discussions and dissertations of that year, illustrating his address by frequent quotations.—Mr. Grahame Brown moved, and Mr. McTurk seconded, a hearty vote of thanks to Dr. Chambers for his address.—Dr. Hewetson presented a case of Streptococcal Poisoning.

The Treatment of Deafness.

A demonstration of the akouphone and the akou-massage, two instruments invented for the purpose of treating catarrhal deafness, was given recently at the rooms of the Scottish Aural and Optical Company, Glasgow. It is claimed that the appliances have been used with beneficial effect in many cases, curing those partially deaf and greatly alleviating patients who had almost lost their sense of hearing. In cases where the middle ear is damaged vibrations are applied through an apparatus like telephonic receivers connected by conducting cords with an electric battery. The power applied operates electro-magnets contained in the ear-pieces and these in turn bring into play small diaphragms which vibrate and transmit wave pressure through the ears. The instrument is so constructed that it is not possible to produce a greater vibrating force than would be beneficial to the ear. Attached to the battery there is an akou-vibra, a small piece of mechanism which stimulates the circulation when applied to the back of the ear. The akouphone is another instrument intended to be used in more serious cases. It is an automatic collector of sound with very sensitive transmitters, which may be adjusted to the ear and carried about like a pair of spectacles. Dr. T. Barr has promised to give the instruments a trial at the Glasgow Throat, Nose, and Ear Hospital.

Death of Mrs. Elder.

By the death of Mrs. John Elder Glasgow has lost one of its most public-spirited and generous citizens and the medical profession one of its warmest friends. It has been calculated that during her lifetime Mrs. Elder gave away about £200,000 to philanthropic and educational objects. It was largely due to her energy and generosity that "The Queen Margaret College" was started. This college, which has been affiliated for some years now to the University of Glasgow, is the recognised medical school for women in Glasgow. Not long ago the University, in recognition of her public services in this and other matters, conferred upon Mrs. Elder the degree of LL.D., an honour which had previously not been conferred upon any lady by the University of Glasgow. A short time before her death Mrs. Elder purchased ground in Govan on which she erected a building known as the Elder Cottage Hospital. In her will she has directed her trustees to endow this hospital with a sum of £50,000 in addition to paying any balance of the cost of the said building and of its due and proper equipment as a hospital. She desires that the cottage hospital, together with the endowment fund, shall be handed over to the executive committee of the Govan Cottage Nurses' Training Home, which shall become incorporated as a body of trustees for the purpose of managing the hospital and its endowment fund. Mrs. Elder has left some valuable pictures to the corporation of Glasgow and after the payment of certain legacies the residue of her estate is to be devoted to the formation of a fund for indigent widow ladies connected with Glasgow or Govan.

Stirling Infirmary.

At the annual meeting of subscribers to the Stirling Infirmary the directors' report referred to the resignation early in the year of four of the visiting medical officers. They had brought before the directors a series of charges partly against one of their colleagues and partly against the matron, their statement being accompanied by an intimation that unless the directors dismissed the matron and retained the services of the house surgeon (who had previously resigned) they would be reluctantly compelled to terminate their connexion with the infirmary. The directors, after going into the matter, came to the conclusion that no sufficient reason had been shown for dispensing with the services of the matron, and it was also resolved to accept the resignation of the house surgeon.

Paisley Infirmary.

A bazaar, promoted on behalf of Paisley Royal Alexandra Infirmary, was opened last week by the Duchess of Albany. The sum aimed at by the committee was £12,000 and the total proceeds exceeded this sum by £5432.

Action against a Sanitary Inspector.

In Campbeltown Sheriff Court the other day an action was raised by a butcher against the sanitary inspector of the burgh for the sum of £23, held to be the value of the carcass of a bullock which was seized at the public slaughter-house and destroyed under a warrant by one of the magistrates of the burgh on the ground that it was unfit for food. The pursuer denied that the bullock was unsound or unfit for food but the sheriff assoilzied the defender and found the pursuer liable in expenses. The case is a novel one and is of some importance not only to butchers but to local authorities and their servants, the sanitary inspectors. The sheriff, in summing up, indicated that the defender was a public official and that in seizing and destroying the carcass in question he was carrying out the provisions of the statute under which he held his employment. On that account the defender was privileged and in any action brought against him for any loss or damage resulting from his actions facts must be alleged sufficient to support an averment that he acted maliciously and without probable cause.

Extension of the University of Aberdeen.

At the meeting in Marischal College on Nov. 23rd of the celebrations committee in connexion with the quater-centenary of the University of Aberdeen Principal Marshall Lang, after narrating the procedure that had been adopted after the meeting held in the town hall on March 18th, 1904, said that hitherto uncertainty as to the visit of His Majesty the King and the formal opening of the new buildings by him had prevented the announcing of any time for the celebrations except the earlier half of September and no precise date could yet be fixed. His Majesty had now assured the Lord Rector that he not only hoped to be able to come but that he intends to be present to open the buildings, so that, unless something wholly unforeseen occurred, this might be assured as a notable feature of the celebrations. It was hoped that before long there would be a clearer statement of the date of His Majesty's visit. If Her Majesty the Queen would accompany the King on the occasion it would add to the honour, and enhance the pleasure, of the Royal visit. The coöperation of the Lord Provost, magistrates, and town council could be relied on to give their Sovereign and the Queen, if their Majesties would so honour them, a right hearty and loyal welcome to the northern city, the capital of the county in which was situated the Scottish home of the Royal Family. Principal Lang indicated some features of the celebrations and emphasised the part to be taken by the students, the music to be provided, the opportunities to be offered of seeing and hearing leaders of thought in Great Britain, America, and on the Continent, and the entertainments of various kinds. The Principal, in conclusion, said: In the meantime it is hoped that all interested will work with a will and will work together for the common end and that the result will be that the commemoration of an interesting past shall have also the prophecy of a great future—generous, but not extravagant; academic, but free from pedantry; representing worthily the traditions of the University and the height, width, and breadth of the brotherhood of letters.

University of Aberdeen Anatomical Society.

A meeting of this society was held on Nov. 25th in the anatomy theatre, Professor R. W. Reid presiding. The chairman congratulated the society on its flourishing condition and referred to the fact that it had been in existence for seven years. He then introduced Mr. Alexander Macdonald, Durris, who read a paper on Ancient Modes of Burial in Scotland. The lecturer first mentioned the pre-Aryan race in Scotland, among whom the custom of cremation was chiefly in vogue. Then he traced the development of the different modes of burial from the earliest to the latest form. The first was the simple placing of the body in the earth without covering. Later, the custom was to place it in a wooden coffin hewn from the trunk of a tree,

and last of all was the more elaborate form of monument represented by the horned and chambered cairns. He referred in particular to the horned cairns in Caithness and the chambered cairns in Orkney and Stennes. The speaker also referred to the usual contents of the cairns and made original suggestions as to the possible purpose of these contents. On the proposal of Mr. Salmond, a hearty vote of thanks was accorded to Mr. Macdonald for his able and interesting paper.

Nov. 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Public Health of Dublin.

THE high death-rate in Dublin has been generally attributed to two causes—the condition of the tenement houses and the mortality among infants. Important meetings have recently been held to remedy both evils if possible. On Nov. 10th a large party of ladies and gentlemen attended the Association for Housing the Very Poor, on the occasion of the opening of the first portion of the self-contained dwellings in Summer-street, Coombe. The Lord Mayor presided and letters of sympathy were read from the Master of the Rolls, Mr Justice Andrews, the Earl of Meath, Lord Ashbourne, the Chief Secretary for Ireland, Sir Andrew Reed, the Dean of St. Patrick, and the Right Hon. Sir Horace Plunkett. Sir Lambert Ormsby as chairman of the board of directors welcomed the visitors and reported the proceedings of the company. Sir Charles Cameron spoke and the Lord Mayor stated that he would become a shareholder in the company and would help it in any way that he could.—There was a very large attendance at Jervis-street Hospital when Dr. William J. Thompson recently delivered an address on Infantile Mortality. Sir Francis R. Cruise presided. Sir William J. Smyly, President of the Royal College of Physicians of Ireland, seconded the Lord Mayor's vote of thanks to the lecturer and made many suggestions as to the proper feeding and treatment of infants. The Lord Mayor promised, as a member of the Dublin corporation and of the technical instruction committee, that he would do anything in his power to have the treatment of infants taught in the schools and said that he felt sure the corporation would readily consider the various suggestions made by Dr. Thompson.

The Election to the General Medical Council.

Dr. L. Kidd (Enniskillen) has just issued his address as a provincial general practitioner. He says: "The issue before the electorate is the plain one of the interests of medical practitioners and medical education, matters in the consideration of which there should be no place for political or sectarian differences, as fortunately the training, education, and daily work of medical men accustom them, more than the members of any other profession, to a freedom and independence of thought and action which will permit of no interference on the part of politicians in the management of their own affairs." As Dr. R. B. Mahon of Ballinrobe has retired the contest will be between the present member, Sir W. Thomson, and Dr. Kidd.

The Royal University of Ireland.

It is announced that the law officers of the Crown have given their opinion in reference to the matter submitted to them by the standing committee of this University, an opinion which is contrary to the view of the legal assessor of the University, who stated that under its charter and statutes it had no power to punish those who so sadly misbehaved at the late conferring of degrees. The law officers of the Crown declare that it is quite competent for the Senate to summon before it members of the University charged with misconduct and to inflict punishment. At a meeting of the Historical and Critical Society of the Catholic University on Nov. 22nd there was a wild scene when Sir Christopher Nixon rose to speak. He was greeted with cries from the students, "Why did you send your son to Trinity College?" Dr. Delany, who presided, reproved the students very severely.

Enteric Fever in Co. Tyrone.

It was reported at the last meeting of the Omagh board of guardians that there were 26 cases of enteric fever in the hospital, with one death. At Greencastle the epidemic is still spreading and of eight patients with the disease only one was willing to go to the hospital. There have been two deaths in the district.

Insanitary Condition of Glenties.

At a meeting of the rural council of Glenties, co. Donegal, Mr. C. H. Falvey, dispensary medical officer of Ardara, reported that the dispensary district was in fairly good sanitary condition, with the exception of one part of the village of Ardara, where the sewerage was defective. Personal uncleanliness existed in the houses; the beds, which were boxes with one side out, were unhealthy and tended to the spread of consumption. A memorial was some time ago forwarded to the Local Government Board complaining of the apathy or neglect of the council in carrying out the sealed order of the Local Government Board made regarding the sewerage of Ardara in August last. The council decided to obtain a report from the county surveyor with an estimate of the cost of carrying out the work.

Nov. 28th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Successive Attacks of Typhoid Fever diagnosed by the Agglutination Test.

AT the meeting of the Hospitals Medical Society held on Nov. 10th M. Sicard related the case of a young man who, while in perfect health (he had three months previously quite recovered from an attack of ordinary typhoid fever), was suddenly smitten with acute pyrexia. The clinical signs were not enough to determine the diagnosis, neither was the mere fact of agglutination enough, for the patient had but recently had typhoid fever and, as is well known, agglutination persists for months after such an attack. The agglutinative index in such cases is constant. But, and this is the notable point in M. Sicard's observation, the measurements of the agglutinative power in the case under review showed very decided oscillations and variations—i.e., in dilutions of from 1 in 300 to 1 in 1200—proving that there was present a new outbreak of the typhoid bacillus. It was therefore a fresh attack and not merely a relapse.

General Paralysis with Dementia.

At the meeting of the Hospitals Medical Society held on Nov. 17th M. A. Marie showed a patient suffering from general paralysis with dementia who had improved somewhat while undergoing specific treatment for a gumma of the soft palate. The patient had no knowledge of having suffered from any syphilitic symptoms and denied in all good faith that he had ever contracted syphilis. The case was one more of those in which general paralysis manifested itself in a syphilitic in whom tertiary symptoms appeared consecutively with diffused meningo-encephalitis. It was curious to note that the presence of syphilis was confirmed by a gumma in a patient who but for the presence of the gumma would have been put down as a case of general paralysis unconnected with syphilis, owing to his definite declaration that he had never had syphilis. It was also curious to note how the meningo-encephalitis improved when specific treatment for the gumma was begun.

The Operative Treatment of Myopia.

On Nov. 14th M. de Font-Réaulx read before the Academy of Medicine a paper on the Treatment of Myopia by Extraction of the Crystalline Lens. He discussed the indications for the operation with great care and impartiality, dealing fully with its advantages and disadvantages and with its results both immediate and remote. The refractive power of the eye is immediately lowered but visual acuity improves to twice or thrice its former strength. Near vision, however, is defective; patients who have had but one eye operated upon prefer to keep the eye intact for reading, writing, or sewing. As for disadvantages, concomitant affections of the fundus are in no way delayed in progress and possibly detachment of the retina is hastened. M. de Font Réaulx came to the conclusion that only cases of high myopia (20 dioptres and over) should be operated upon and, moreover, the occupation of the patient must be taken into consideration. Thus a signalman might be advised to undergo operation while an engraver should be dissuaded. The operation improved distant vision more than near.

A New Chair at the Paris Faculty of Medicine.

The council of the university sitting in extraordinary

conclave at the Sorbonne, M. L. Liard, the vice-rector, presiding, accepted a donation from the Duc de Loubat for the endowment of a chair of clinical therapeutics, to which proposition the faculty has given its favourable consideration.

Laicisation of Two Paris Hospitals.

The Paris municipal council after a long discussion has adopted the conclusions of M. Navarre regarding the laicisation of the Hôtel Dieu and the Hôpital Saint-Louis, the only two remaining Paris hospitals under the Assistance Publique in which the nursing is still in the hands of nuns. In pursuance of the decision of the council the committee of the council will appeal to the Government to obtain the abrogation of the decree under which the nuns were installed in the hospitals in question. If the abrogation is obtained the Director of the Assistance Publique will arrange that within three months' time the nuns shall be replaced by lay women. In any case, the municipal council says that the Augustinian nuns will not be allowed to hold their posts even if they should wear lay habit. But the Director of the Assistance Publique, probably considering that this last clause should be modified, has made the following declaration: It must be understood that Augustinian nuns who give up their vows (*redevenues laïques*) and who wish to remain in the hospital service may keep their old positions, due regard being had to their fitness for work, their age, and their length of service.

The Hearing of Certain Deaf-Mutes.

At the meeting of the Academy of Sciences held on Nov. 13th, M. Marage read a paper in which he stated that contrary to the generally received opinion there are really very few deaf-mutes who are absolutely deaf. By means of an instrument which represents the fundamental vibrations of the vowels M. Marage has been able to show that certain deaf-mutes are very sensible to low sounds, although they cannot hear the same vowels when pronounced on a high note. This is precisely the opposite to what occurs with the normal ear. M. Marage has proved by experiment that certain of the lower animals in which the organ of hearing has been entirely destroyed are equally sensible to low sounds, but this is due to tactile sensation and not to auditory sensation. A proof that this explanation is the right one is that deaf-mutes who are also sensible to low sounds and insensible to high sounds never develop from the point of view of auditory sensation, while there are other deaf-mutes with a different variety of audition, in whom by means of exercising their auditory faculties with a syren improvement happens so that they can eventually hear the human voice.

A Curious Neurosis.

At the meeting of the Society of Neurology held on Nov. 9th, M. Ballet showed a young girl who since infancy had suffered from a defect in speaking and in writing. In the middle of a conversation and while she was writing to dictation (*rédaction*) she would suddenly stop but after a deep inspiration she recommenced her speaking or her writing. The case was one which involved psychical trouble in which three morbid elements took part—*phobie du mot*, aboulia, and an acquired bad habit (*tic*). It was probable that the patient would improve under practice in speaking and writing.

Nov. 28th.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. Adolphe Hesse a legacy amounting to nearly £30,000 has been left to the Nottingham General Hospital.—The late Mr. J. Williams has bequeathed £8000 to the Bath Eye Infirmary.—The Right Hon. Sir Massey Lopes has given £500 as an endowment for the Devon and Cornwall Sanatorium for Consumptives, Didworthy.—Mr. G. A. Wills has given £1500 to endow a bed in the Bristol General Hospital to the memory of his late wife.—By the will of Mrs. Emma Poncia of Edgbaston, Birmingham, £10,000 are bequeathed to the Birmingham General Hospital, £10,000 to the Queen's Hospital at Birmingham, and a sum of between £25,000 and £30,000 in trust for such charitable institutions in Birmingham as the executors may choose.—The late Mr. Joseph Kellett Smith, L.R.C.P. Edin., M.R.C.S. Eng., has bequeathed £1000 to the trustees of the Stanley Hospital, Liverpool, to be invested by the committee and the income devoted to the endowment of a bed in the "Kellett Smith Ward."

Obituary.

SIR JOHN SCOTT BURDON-SANDERSON, BART., M.D. EDIN., F.R.S.,

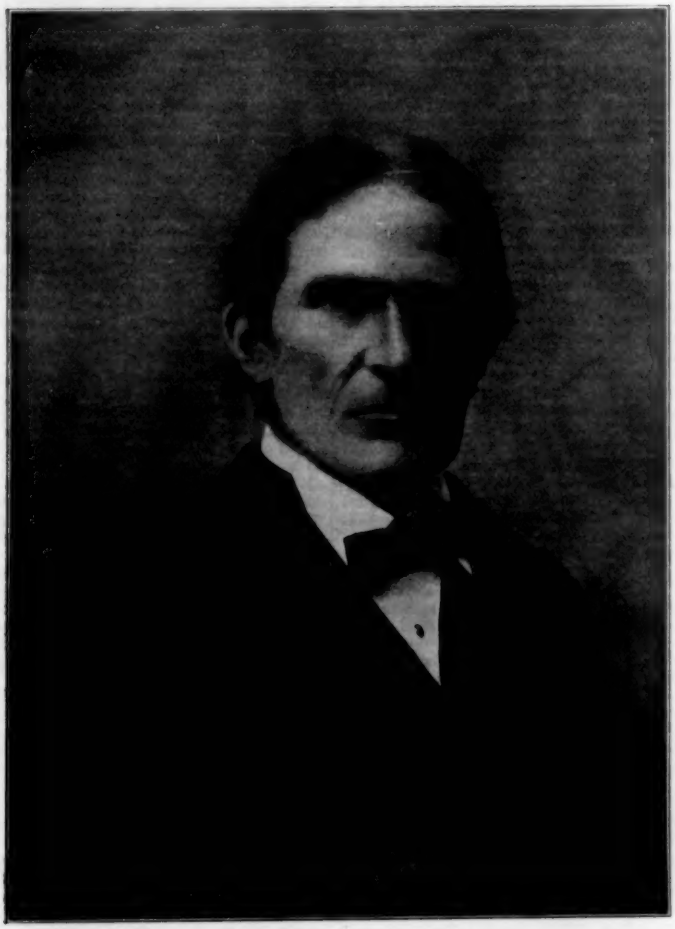
LATE REGIUS PROFESSOR OF MEDICINE AT THE UNIVERSITY OF OXFORD.

OXFORD in particular and the world of science in general have sustained a severe loss by the death of Sir John Burdon-Sanderson which occurred at Oxford on Nov. 23rd in his seventy-seventh year. He was born at Jesmond in 1828, his father being Richard Burdon who assumed the surname of his wife, Elizabeth Sanderson, in addition to his own. John Burdon-Sanderson was educated at home and at the Universities of Edinburgh and Paris. In 1853 he married Ghetal, a sister of the late Lord Herschell, and settled in London in 1855. From 1856 to 1867 he served as medical officer of health of Paddington, being also from 1860 to 1865 inspector in the medical department of the Privy Council, while from 1860 to 1870 he was physician to the Brompton Hospital for Consumption and assistant physician to the Middlesex Hospital. From 1871 to 1878 he was superintendent of the Brown Institution and from 1874 to 1882 held the chair of Jodrell professor of physiology in University College, London. In 1882 came the call to Oxford, his first post there being that of Waynflete professor of physiology, which chair he held from 1882 to 1895, in which latter year he succeeded Sir Henry Acland as Regius professor of medicine, a post which he resigned in 1904.

Burdon-Sanderson's earliest and perhaps chief claim to fame consists in the admirable work which he did in the department of public health. From 1860 to 1885 he drew up elaborate and valuable reports to the medical departments of the Privy Council and the Local Government Board upon subjects connected with public health, such as those upon the cholera and cattle plague epidemics of 1866 and the reports to the Privy Council in 1867 and 1868 upon tuberculosis. He was Croonian lecturer to the Royal Society in 1867, 1877, and 1899, and in his first course he took for his subject the influence of respiratory movements upon the circulation.

His appointment as Waynflete professor of physiology raised a storm of protest and every Oxford man in any way connected with science will remember the heated debates in Convocation which eventually resulted in 1883 in a grant of £10,000 for the founding of the physiological laboratory. Enmity, however, still continued and another debate arose in Convocation over the provision for a heating apparatus. This was bitterly opposed and one member of Convocation in a burst of fervid oratory commenced by quoting, "The quality of mercy is not strained." His behaviour was so strange that he was removed and a revolver was found upon him, but with what intention he had brought it was never ascertained. When Burdon-Sanderson went to Oxford there was no University physiological laboratory and pending the building of a new one he worked in the Daubeny laboratory attached to Magdalen College. He was an admirable teacher and all who knew him felt that he possessed a quality which is too rare in masters of any kind whether in the field of education or of business. He not only took an interest in his sphere of work but also in those whom he taught or who assisted him in his work. And by this faculty he got the best possible work out of his subordinates. His pupils and assistants were his friends, not merely his servants, and there is nothing so likely to get good work out of a man as the feeling that he is working for someone who appreciates his toil at its right level. Burdon-Sanderson always led those under him and inspired them to do their best; they worked for him because they felt that they would be unworthy if they did not do so.

In his work at Oxford when Waynflete Professor of Physiology, he used to give lectures which most of his students found extremely interesting, though perhaps they were occasionally somewhat above the heads of his audience. He gave both elementary and advanced lectures and in practical work he used to take the experimental (muscle and nerve) work together with Dr. M. S. Pembrey. He was not very skilful in the mechanical details of experimentation but he made up for this by his extreme keenness and enthusiasm. These qualities he retained even to the last and only a few days before his death he was looking forward to being well enough to go round to the



SIR JOHN SCOTT BURDON-SANDERSON, BART., M.D. EDIN., F.R.S.,
LATE REGIUS PROFESSOR OF MEDICINE AT THE UNIVERSITY OF OXFORD.

laboratory to see about some of his research work. This research he carried on continuously so far as his health would permit while at Oxford. From about 1892 to 1900 he worked chiefly in conjunction with Dr. Burch and together they elaborated a very efficient capillary electrometer apparatus for investigating with the aid of photography the time relations of the mechanical and electrical resistance of muscle on contraction. Later he worked in conjunction with Miss Buchanan and up to the time of his last illness they were still engaged upon investigating the time relations of the electrical resistance of various tissues on excitation, more especially those in connexion with certain insectivorous plants. For these experiments they had elaborated a still more complete photographic electrometer apparatus and one which could be worked in the daylight. In spite of his great enthusiasm in his own special branch of physiology Burdon-Sanderson did not induce any of his pupils, at least at Oxford, to take up the work, most of them preferring the chemical side of physiology. Still, being above all things a broad-minded man, he would take equal interest in every bit of the work of his pupils whatever its nature might be. When he became Regius Professor of Medicine he continued his physiological research but he lectured for a short time on pathology. Soon, however, he gave up this as there were at that date so very few men in Oxford working at the subject that it was hardly worth his while to continue. In his official work he had, of course, to look after the interests of the Medical School and to preside over the Board of the Faculty of Medicine, and it was mainly owing to him that various reforms were introduced, such as the creation of separate examinations for pathology, for public health, and for forensic medicine in the final examination for the M.B.

In 1893 he was President of the British Association and he took for his presidential address the subject of biology. He said that the purpose of his address was to show that there was but one principle—adaptation—separating biology from the exact sciences. It is interesting now, in view of recent publications of Haeckel and of Sir Oliver Lodge, to call to mind Burdon-Sanderson's concluding statement: "What I have desired to insist on is that organism is a fact which encounters the biologist at every step in his investigations; that in referring it to any general biological principle we are only referring it to itself, not explaining it; and that no explanation will be attainable until the conditions of its coming into existence can be subjected to experimental investigation so as to correlate them with those of processes in the non-living world."

No one has yet determined the conditions of "organism" coming into existence but it is worth while here to quote the latest pronouncement on the subject by Sir Oliver Lodge.[1] He is talking of the individuality which the organism acquires by means of life. Some try to think that the material molecular aggregate of its own unaided latent power generates this individuality. "There are others who recognise in this extraordinary development a contact between this material frame of things and a universe higher and other than anything known to our senses; a universe not dominated by physics and chemistry but utilising the interactions of matter for its own purposes; a universe where the human spirit is more at home than it is among these temporary collocations of atoms; a universe capable of infinite development, of noble contemplation and of lofty joy long after this planet—nay, the whole solar system—shall have fulfilled its present spire of destiny, and retired cold and lifeless upon its endless way."

Of honours for his work Burdon-Sanderson received a full share. In 1881 he was Baly medalist of the Royal College of Physicians of London. The medal is granted every two years to "the person who shall be deemed to have most distinguished himself in the science of physiology, especially during the two years preceding the award." Much of his work in physiology is unknown to any except men of science and is contained in papers read before the Royal Society. This was the case with an elaborate series of researches on the Electrical Properties of Dionæa Muscipula as well as on the Electrical Organs of the Skate and other Electrical Fishes. For this work and for that upon the Nature of Contagion he received a Royal medal of the Royal Society in 1883. The researches on the electrical properties of plants were undertaken at the instance of Charles Darwin who makes frequent references to Burdon-Sanderson's labours in his work on "Insectivorous Plants."

[1] Lodge: Life and Matter, p. 199.

Burdon-Sanderson served on three Royal Commissions—that on Hospitals in 1883, that on the Consumption of Tuberculous Meat and Milk in 1890, and that on the University of London in 1892. In 1899 Queen Victoria conferred upon him the honour of a baronetcy. Other works by him were "A Handbook of the Sphygmograph, together with a Lecture on the Mode and Duration of the Contraction of the Heart, both in Health and Disease," London, 1867; "Recent Researches on Artificial Tuberculosis in their Relation to the Pathology of Phthisis," Edinburgh, 1869; and "A Handbook for the Physiological Laboratory." This last book was the work of himself and other physiologists—namely, Dr. E. Klein, Sir Michael Foster, and Sir T. Lauder Brunton. It was first published in London in 1873. Besides these he wrote the article on Inflammation in Vol. V. of Holmes's "System of Surgery" and a number of reports to the Government upon various sanitary subjects, including one upon an epidemic of cerebro-spinal meningitis occurring on the Lower Vistula. As has been mentioned above, the work which engaged him up to the time of his last illness was a revision of, and additions to, his researches upon the Dionæa in the light of the most recent advances in apparatus necessary for the investigation of the subject.

The funeral took place on Nov. 28th, the first part of the Burial Office being sung in the chapel of Magdalen College. There were present the Vice-Chancellor, the Proctors, the President and Fellows of Magdalen, and the Regius Professor of Divinity, the Regius Professor of Pastoral Theology, the Regius Professor of Ecclesiastical History, and the Regius Professor of Civil Law. Among the heads of Houses present there were the Warden of New College, the Warden of All Souls, the Provost of Worcester, the Provost of Queen's, the Provost of Oriel, the Rector of Lincoln, the President of Trinity, the Rector of Exeter, and the Warden of Keble. Representing the various learned societies were the following: Sir T. Lauder Brunton and Dr. W. H. Gaskell, representing the Royal Society; Sir William S. Church, representing the Royal College of Physicians of London; Dr. P. H. Pye-Smith, representing the University of London and the Pathological Society of London; Dr. A. E. Schäfer, representing the University of Edinburgh; Dr. R. D. Sweeting, representing the Local Government Board; Dr. C. J. Martin, representing the Lister Institute; Dr. J. Rose Bradford, representing University College, London; Dr. A. W. Waller, representing the Physiological Society; Dr. Arthur Thomson, representing the General Medical Council; Dr. W. Collier, representing the British Medical Association; and the Warden of Radley College. As representing the Medical Faculty there were present Professor William Osler, Regius Professor of Medicine of the University of Oxford; Professor T. Clifford Allbutt, Regius Professor of the University of Cambridge; the Lichfield Lecturer in Medicine, the Lichfield Lecturer in Surgery, the Professor of Pathology, the Sedleian Professor of Natural Philosophy, the Linacre Professor of Comparative Anatomy, the Professor of Human Anatomy, the Waynflete Professor of Physiology and the Lecturer in Physiology, the Aldrichian Demonstrator in Comparative Anatomy, the Hope Professor of Zoology, the Professor of Anthropology, Dr. W. A. Walker, Mr. G. Mann, Mr. J. S. Haldane, Mr. G. J. Burch, D.Sc., the Waynflete Professor of Mineralogy, Dr. A. L. Ormerod, Dr. A. P. Parker, Dr. Walter Ramsden, Dr. W. A. P. Waters, Mr. H. P. Symonds, and three medical graduates of Magdalen College, Dr. G. A. Buckmaster, Dr. H. P. Cholmeley, and Dr. E. Mallam. The choir and the clergy met the body at the West door and preceded it into the chapel while the opening sentences of the Office were sung to Croft's music. The coffin was placed just to the west of the lectern, being flanked by four lighted candles. The service proceeded up to the end of the Lesson, after which "Blessed are the departed" was sung to Spohr's music. The procession then left the chapel, the mourners following the body which was removed to Wolvercote cemetery for interment.

JOHN CROFT, F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

Mr. John Croft, whose death took place at West Kensington on Nov. 21st, was the son of Hugh and Maria Croft and was born near Newhaven in Sussex in 1833; he was the grandson of Gilmore Croft who was a successful practitioner in the City of London and later removed to Hastings. Mr. Hugh

Croft came to London and lived at Lower Clapton and the son received most of his early education at the Church of England Grammar School in Hackney.

In 1850 Mr. Croft entered as a student at St. Thomas's Hospital, attending Mr. Le Gros Clark's lectures on anatomy; during the same time he gained a knowledge of materia medica and pharmacy by going daily to Messrs. Shuttleworth's, the druggists, in Leadenhall-street. In 1852 he was appointed dresser to Mr. Le Gros Clark and established the close friendship which afterwards existed between them. He was apprenticed to Mr. Thomas Evans of Burwash in Sussex. In the latter part of 1854 he obtained the qualifications of M.R.C.S. Eng. and L.S.A., and at the beginning of 1855 he was elected house surgeon for six months; at the expiry of this office he became assistant surgeon to the Seamen's Hospital ship *Dreadnought*. In 1859 he passed the examination for the Fellowship of the Royal College of Surgeons of England. In 1860 he left the *Dreadnought* and returned to his old hospital as assistant demonstrator of anatomy and surgical registrar; he was also elected surgeon to the Surrey Dispensary. Upon his appointment as resident assistant surgeon at St. Thomas's Hospital in December, 1863, he resigned the last two posts; during his residence the work of the hospital was carried on in temporary buildings erected at the Surrey Gardens, where he gained a large experience which resulted in his appointment as assistant surgeon on Jan. 1st, 1871; six months later he was promoted to be surgeon on the opening of the new hospital on the Albert Embankment. With the reorganisation of the medical school at this time he resigned the demonstratorship of anatomy and became lecturer on practical surgery. In 1881 he vacated this to become special lecturer on clinical surgery, which post he held up to the date of expiry of his term of office as surgeon in July, 1891. He was then elected consulting surgeon to, and a governor of, the hospital. In the work of the Nightingale Home for Nurses he took a special interest and for many years acted as one of their lecturers. Outside St. Thomas's Hospital Mr. Croft acted as surgeon to the National Truss Society and to the Magdalen Hospital; he was also consulting surgeon to the Royal Kent Dispensary, the Kensington Dispensary, the Miller Memorial Hospital, and the Hounslow Cottage Hospital. For many years he was surgeon to the National Provident Assurance Society, only resigning this within the last few years when his health began to fail. At the Royal College of Surgeons of England he had been a member of the Council, a Vice-President, and a member of the Court of Examiners. He had also acted as examiner in surgery at the Royal College of Physicians of London and in the University of Durham. When the British Medical Association met at Nottingham in 1892 Mr. Croft was President of the Surgical Section.

JOHN CROFT, F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

Among his many contributions to surgical literature the papers in THE LANCET in 1878 and in the Transactions of the Royal Medical and Chirurgical Society in 1881 on Immediate Treatment of Fractures of the Leg by Plaster-of-Paris Splints perhaps stand first. Croft's splints are universally known and their introduction effected a most radical progress in dealing with these injuries. A subject in which he was deeply interested was disease of the hip-joint, in which he advocated early excision, publishing a paper based on the results of 47 cases in the Transactions of the Clinical Society in 1880. Although at the present time a more conservative treatment might appeal to the majority of surgeons it must be remembered that then free drainage was demanded and the result was a shortened convalescence, a reduced mortality, and many excellent recoveries at the expense of considerable shortening. Another very important paper on Rupture of the Intestine without External Wound, based on a successful case of resection, appeared in Vol. xxiii. of the Transactions of the Clinical Society: this was one of the very first reported. Many other interesting papers are to be found in the Transactions of various societies and in the Reports of St. Thomas's Hospital. Convinced of the value of healthy exercise, Mr. Croft was for many years an enthusiastic golfer until cardiac irregularity and defective eyesight precluded him from his favourite pursuit. To those who knew him intimately he was a most genial, kindly companion. Devoted to the interests and doings of St. Thomas's Hospital he was always delighted in his last years to hear all the latest news and to discuss old times with his former colleagues. He was most courteous and dignified, and had a stern sense of duty, which at times to the outsider might appear almost exacting. A man of strong religious convictions he was always ready to ally himself with those working to remedy some social defect and to produce a higher ideal.

In 1864 he married Annie Douglas Douglas, the daughter of Alexander Douglas Douglas; she survives him and we desire to express sincere sympathy with his partner of so many years who made every interest for the good of the hospital with which her husband was connected especially her own. Mr. Croft has left no children. The funeral service took place at St. Barnabas Church, Addison-road, London, W., on Nov. 25th, nearly all Mr. Croft's late colleagues and many old friends being present. The interment was at Kensal Green cemetery.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Hermann Cordua, an eminent Hamburg surgeon, at the age of 54 years.—Dr. Julius Port, surgeon-general in the Bavarian army and an eminent hygienist, at the age of 71 years.—Dr. Gottfried Schwarz, one of the prosectors in the Franz Joseph Hospital, Vienna, and a contributor of many valuable papers to medical literature on pathological anatomy and pathology.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Professor Koch on Relapsing Fever.

Professor Robert Koch, who has been for nearly a year in German East Africa, has recently returned to Berlin. He has been principally occupied with investigations on relapsing fever, and in the *Deutsche Medizinische Wochenschrift* of Nov. 23rd he has given some account of his results. He states that Europeans travelling by the caravan road from Dar-es-Salaam, the capital of the colony, into the interior, have for a long time been liable to contract a disease which was formerly believed to be malaria but recent research has

proved it to be relapsing fever and the diagnosis has been confirmed by a microscopical examination of the blood. It was suspected that ticks of a certain species conveyed the infection, and Professor Koch found that they contained spirochætæ which were very like those of relapsing fever. Professor Koch, accompanied by Staff Surgeon Meixner, accordingly made a journey along the above caravan road and discovered that African relapsing fever differed from the European form in but few respects, the chief of which were the shortness of each pyrexial stage and the small number of spirochætæ in the blood. The African spirochætæ are, as a rule, longer than the European. By subcutaneous injections of blood containing spirochætæ monkeys could be infected with the disease in a severe and even fatal form, but cattle, dogs, and other animals were exempt. The researches of Professor Koch on the transmission of relapsing fever, of which an epitome has been given in THE LANCET of Sept. 30th, p. 1001, are very interesting. The above-mentioned tick, ornithodorus moubata (Murray), lives in the floors of native dwellings; at night it comes out, gorges itself with human blood, and during the daytime hides itself again in the floor. The ticks are probably spread throughout the whole colony even in places which are rather distant from the caravan road. When a tick has sucked the blood of a person or a monkey suffering from relapsing fever the spirochætæ do not increase but, on the contrary, they disappear in a few days from the stomach of the tick. When, however, the ovary after staining with an eosin solution is examined spirochætæ are usually found on the surface of the ovary and subsequently within the ova. At first only a few but afterwards a great number of them are present in the ova, so that they apparently increase within the ova. None of the three European members of Professor Koch's expedition contracted relapsing fever as they were careful not to spend the night in native dwellings; of the five native servants, four contracted the disease, but none of the 60 native bearers suffered from it, though they slept in native huts, the cause of this being that they had already been attacked by it and had therefore become immune. Professor Koch is of opinion that relapsing fever is much more widely spread in Africa than is generally believed; the natives suffer from it in childhood and are therefore in after life either totally exempt or else have the disease in a mild form. For Europeans the best prophylactic against relapsing fever is to avoid encamping on ground which other persons, especially natives, have recently occupied.

Appointment of a Woman as a Police Surgeon.

A woman whose principal duty will be the examination of prostitutes with a view to the detection of venereal diseases has recently received an appointment on the medical staff of the Berlin police. This action of the police authorities must be regarded as reasonable, for a woman, apart from her official duties as a medical officer, may come to acquire some personal influence over these unfortunate females and she may be able to help those who are willing to return to a respectable life. Of the 46 duly qualified medical women two are medical officers to schools, three have State appointments at a lying-in hospital and in lunatic asylums, and the others are engaged in private practice. It must be remembered that it is only since the year 1900 that German medical qualifications have been conferred on women.

Nov. 28th.

THE GEORGE BROWN TESTIMONIAL FUND.—A committee of the Incorporated Medical Practitioners' Association has been formed for the purpose of presenting Mr. George Brown, one of the Direct Representatives on the General Medical Council, with some token of their regard on his retiring from office as senior editor of their official journal, the *General Practitioner*. It is pointed out that Mr. Brown has given the best part of 40 years in working for the interests of general practitioners to improve their medical, social, and political status and that he has done good work in improving club practice and also on the nurses and midwives questions. It is thought that there are many practitioners who are not members of the Incorporated Medical Practitioners' Association who might like to join in this tribute to Mr. Brown. Any gentlemen who would like to testify their gratitude to, and respect for, him may do so by sending their subscriptions to Dr. J. Pollock Simpson, secretary and treasurer of the Fund, 8, Upper Montagu-street, Montagu-square, London, W., who will acknowledge all sums received. Cheques should be crossed "George Brown Testimonial Fund."

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

TUESDAY, NOV. 28TH.

THE winter session of the General Council of Medical Education and Registration of the United Kingdom was opened in the hall of the Council, Oxford-street, London, W., on Tuesday, Nov. 28th, Dr. DONALD MACALISTER, the President, being in the chair.

New Members.

Professor Robert Saundby was introduced by Dr. Caton as a member of the Council representing the University of Birmingham.

Lieutenant-Colonel F. G. Adye-Curran, A.M.S. (retired), who has been appointed to represent the Apothecaries' Hall of Ireland, was introduced by Sir Christopher Nixon.

Dr. William Tusting Cocking was introduced by Sir John Williams as member for the University of Sheffield.

Professor Sir Thomas Richard Fraser was introduced by Sir John Batty Tuke as the new representative of the University Court of the University of Edinburgh.

The President's Address.

The PRESIDENT then gave his opening address. He said: Since we last met certain changes of importance have taken place in the composition of the Council. Sir William Turner, our late President, has resigned his seat as representative of the University of Edinburgh. From the year 1873, the time of his first appointment by the Universities of Edinburgh and Aberdeen, his great powers have been placed at the service of the profession, and 30 volumes of our minutes testify to the extent and variety of his contributions to medical administration. For a generation the Council has trusted his wisdom, his justice, and his zeal for its honour and efficiency. During the six years of his presidency the warm personal esteem in which he was held within and without our membership grew deeper as it was realised how greatly his qualities of mind and character enhanced the consideration accorded to the Council by the State and by the commonwealth of medicine. His high distinction as a man of science and as an educational statesman has been fittingly recognised by the Sovereign and by many learned bodies at home and abroad. But I have reason to believe that Principal Sir William Turner reckons it far from the least among his many honours that his colleagues on this Council, with whom he had so long been conversant, freely chose him to preside over them. In writing to accept his resignation I felt that you would desire me to add an expression of the sense of manifold obligation and of grateful regard with which we bid him farewell. Dr. Windle's appointment to the presidency of Queen's College, Cork, has involved the severance of his connexion with the University of Birmingham, and so with this Council, where he sat as its first representative. In him we have lost an able and a clear-minded expert in education, general as well as professional, who did with his might whatever his hand found to do. The Education Committee, of which he was chairman, will miss his firm grasp and wide knowledge of the questions that lie within its province. Dr. Atock, who joined us last session, was elected by the Apothecaries' Hall of Ireland only for the unexpired portion of the term of the late Dr. Charles Tichborne. He is succeeded as governor of the society and as a member of the Council by Dr. Adye-Curran who holds the rank of lieutenant-colonel in the Army Medical Service and who will doubtless be willing to afford us first-hand information regarding that important branch of our common professional life. The University of Birmingham will be represented by Dr. Robert Saundby, one of its distinguished body of professors. His eminence as a physician and as an exponent of medical ethics and his familiarity with many forms of administrative work render him a valuable addition to our number. From the University of Edinburgh we are glad to welcome Sir Thomas R. Fraser, professor of materia medica and clinical medicine in that great school. As a recognised authority on pharmacology and therapeutics he will be able to render the Council much assistance in regard to one of its statutory functions,

the preparation and publication of the British Pharmacopœia. But his equally high reputation in other fields leads us confidently to reckon upon his aid, not in one only but in all departments of the Council's activity. From the new University of Sheffield, whose inauguration by their Majesties the King and Queen I attended as your representative last July, we receive an additional member in the person of Dr. Cocking, the Dean of the Faculty of Medicine in that University. In the constructive work which has accelerated the development of the medical school of Sheffield into the present well-equipped faculty, the dean has borne an active part. In receiving him we offer the right hand of fellowship to the youngest of our universities, whose auspicious beginnings give promise of a vigorous and beneficent life. By the University of Sheffield Act, 1905, which passed into law on August 4th, that University is "empowered to hold qualifying examinations in medicine, surgery, and midwifery, for the purpose of registration under the Medical Acts." Moreover, the Council of the University is entitled to choose one representative to be a member of the General Medical Council, "provided always that the fees for attendance and the travelling expenses of such member payable under Section 12 of the Medical Act, 1858, shall not be paid from the funds of the General Council or of the Branch Council for England until such time as, upon the representation of the General Council or of the Privy Council made in the manner set forth in Sections 10 and 19 of the Medical Act, 1886, and subject to the provisions therein contained, His Majesty may by Order in Council appoint."

The proviso just read was added to Clause 8 in its passage through the House of Commons, with the assent of the University and of the promoters of the Bill. In accordance with your suggestions the Privy Council had previously been approached on the subject and it was pointed out that the clause in its original form appeared to ignore the power to provide for the representation of new universities devolving on His Majesty in Council under the Medical Act, 1886. The objection was taken into consideration by the Government departments concerned and after conference with them and with certain Members of Parliament, in which I had the indispensable assistance of Sir John Batty Tuke, the arrangement embodied in the proviso was ultimately adopted. It is right to state that Sir John Batty Tuke was not fully in accord with the procedure. Its effect is to conserve the above-mentioned power of His Majesty in Council, acting on the initiative of the General Medical Council, or in its default of the Privy Council, so far as any charge on our depleted funds is concerned. I venture to hope that this arrangement will be approved by the Council as giving substantial effect to the wishes it expressed at our last meeting. In any case I must publicly tender my grateful acknowledgments to the various authorities and persons concerned for the spirit in which they received the representations I made on your behalf and for the goodwill they exhibited in seeking and finding a practical solution of the question.

Another Bill affecting the Council has also passed into law—namely, that associated with the names of General Laurie and Sir John Batty Tuke, which was described by Sir William Turner in his presidential address of May, 1904, and approved by you on May 31st, 1904. The effect of the Medical Act (1886) Amendment Act, 1905, is to enable a part of a British possession which possesses a local as well as a central legislature, to apply on its own behalf to His Majesty in Council for admission to the privileges of medical reciprocity with the United Kingdom. The provinces of the Dominion of Canada, hitherto debarred by the terms of the Medical Act, 1886, from making such application individually, are now free to do so. The Canada Medical Act, 1902, which aims at unifying in certain important respects the medical administration of the Dominion, has so far proved inoperative and the Federal Government is therefore unable to take up the question of reciprocity for the Dominion as a whole. The new Act removes the legislative deadlock. There is reason to hope that before long efforts will be made to obtain for great provinces like Quebec and Ontario a position in relation to the British Register similar to that enjoyed by the States of the Australian Commonwealth. A communication from the Lords of the Council conveys the interesting information that an application has been made to His Majesty on behalf of the Japanese Government, "requesting that steps may be taken so that Japan may be recognised as one of the countries to which the Medical Act of 1886 applies, thus enabling Japanese medical practitioners to practise medicine in the Straits Settlements as well as in other parts of the British Empire." The decision that Part II. of the Medical Act, 1886, shall apply to a foreign country rests with His Majesty in Council. The foreign country must be one which in the opinion of His Majesty affords to the registered medical practitioners of the United Kingdom such privileges of practising therein as to His Majesty may seem just. According to my information inquiries have already been instituted by the Privy Council, for the purpose of ascertaining the conditions under which British practitioners are permitted to practise within the Japanese Empire. Should the conditions prove to be satisfactory, and should the order in Council accordingly be sanctioned, it will fall to the General Medical Council to consider what medical diplomas granted in Japan shall be recognised for registration in this country. Such diplomas must furnish "a sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of medicine, surgery, and midwifery," and the duly accredited holders may be registered in the foreign list. In view of the remarkable achievements of our ally in the domain of medical science and practice, I do not doubt that the Council will await with sympathetic interest the result of the negotiations now in progress. I shall endeavour, at the proper time, to procure and to place before you the fullest information regarding the actual conditions affecting medical education and examination in Japan.

I have already reported to the Council that Sir John Batty Tuke, during the last session of Parliament, endeavoured to secure that the question of the unqualified practice of medicine and of dental surgery by certain limited companies should be inquired into by a departmental committee then sitting to consider the working of the Companies Acts. His efforts were unsuccessful, as it was officially affirmed that the question lay outside the scope of the committee's reference. Undeterred by this refusal he decided to introduce, in his own name, the two Bills on the subject which were drafted by Mr. Muir Mackenzie and submitted by direction of the Council to the Lord Chancellor. The purpose of the Bills may be briefly described thus; that any practice which, under the Medical and Dentists Acts, is unlawful when carried on by a person, shall be declared unlawful when carried on by a limited company. The Bills were ordered by the House to be printed on June 26th, and Sir John Batty Tuke sought to have them referred for consideration to the above-mentioned committee; but he was unable to bring this about before the prorogation of the House in August. Some advantage was, however, gained by the publication of the Bills and the Companies Bills Committee will doubtless be prepared to consider them afresh, in the light of experience and of criticism, should a favourable opportunity occur for pressing them once more on the attention of the Government. Steps have been taken by the British Dental Association to obtain in England a declaration of the law respecting dental companies similar to that which has already been procured in Ireland. In two instances the Attorney-General has, on the relation of the association, granted his fiat for proceedings against registered companies which were held to be unlawful. In each case, however, the company anticipated matters by dissolving and the proceedings accordingly came to an end before they reached the stage of trial. I am informed that the association may be expected to continue its public-spirited efforts in this direction. They concern the interest of the public no less than that of the dental profession, and are worthy of our appreciative recognition.

Before I turn to the business on the programme, let me say that, as your President, I was a guest at the magnificent ceremonies which were held last July in the metropolis of Scotland to celebrate the 400th anniversary of the Royal College of Surgeons of Edinburgh. The proceedings, which extended over four days, testified to the world-wide fame of the Royal College and to the affectionate esteem in which Sir Patrick Heron Watson, the *doyen* of this Council and President of the College, is worthily held by his professional brethren. In accordance with your instructions, the opinion of your legal advisers has been taken on the question whether degrees in dentistry are registrable as licences or primary qualifications; on the question whether a warning notice should be issued to practitioners with reference to the practice of advertising and canvassing for patients; on the

question whether the Standing Orders prescribing the notice of inquiry addressed to accused practitioners should be amended, in cases where more than one charge is brought; and on questions arising out of the proposed revision of the Standing Orders relating to the visitation and inspection of examinations. On all these subjects the Executive Committee will submit reports for your consideration. The inspection of the final examination in surgery conducted by the University of Edinburgh has been duly completed and the inspector's report, together with the remarks of the University thereupon, has been forwarded to the members of the Council and referred to the Examination Committee in the usual course. The present cycle of visitations and inspections is thus brought to an end. The Council will note with satisfaction that, though methods vary and requirements differ, there is no qualifying examination in the United Kingdom which is reported to be "insufficient" to guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery. It is the statutory duty of the Council to maintain this standard of proficiency, and to judge from the reports before you, the means you have adopted for the fulfilment of that duty, in coöperation with the loyal efforts of the licensing bodies, have proved effective. Important as is the maintenance of the standard of examination in the various branches of physic the sufficiency of the course of study in each branch is not less important and the Council, under Section XX. of the Medical Act, 1858, is responsible in an equal degree for its maintenance also. Sir John Williams, in May, gave us reasons for thinking that the accustomed routine of instruction in practical midwifery should be reconsidered with a view to its possible improvement. On his motion a committee of inquiry was accordingly constituted. In order to ascertain the facts I addressed a circular letter to the schools connected with the several licensing bodies, asking on your behalf for the favour of answers to a number of queries drawn up by members of the Practical Midwifery Committee. The answers returned are highly instructive and will afford matter for careful consideration by the committee. They have been laboriously abstracted and classified by the Registrar, with the assistance of Mr. Cockington, and the committee will in due course place the digest before the Council. The question of making better provision for the teaching of operative surgery has received much attention from the members of the Anatomy Acts Committee and some progress has been made during the vacation. The committee will meet during the present session to receive reports as to the steps taken and contemplated, in pursuance of the power to act in the name of the Council which has been conferred upon it. Mr. Secretary Lyttelton has been good enough to forward to the Council communications from a considerable number of Colonial Governments in reply to the inquiries which, as chairman of the Pharmacopœia Committee, I recently formulated respecting the inclusion in the next Pharmacopœia of the drugs and preparations sanctioned for local use in the Indian and Colonial Addendum, 1900. The documents have been referred to the Pharmacopœia Committee, to which they will be of great service during the preparation of the next issue. Copies of the new Pharmacopœias of the United States and of Spain have also been received. It is interesting to observe that in these the respective authorities have embodied the conclusions of the Conference on Potent Drugs held at Brussels in 1902, which were subsequently, with your approval, made the subject of an international agreement. The Colonial Secretary has also transmitted for the information of the Council a series of important ordinances and enactments referring to the practice of medicine, &c., in the Straits Settlements, Singapore, Ceylon, and the Orange River Colony. These are printed for convenience of reference in the minutes of the Executive Committee. Members will doubtless observe, not without something akin to envy, that in these and other parts of the Empire the legislature has had the wisdom to impose on unqualified practice legal restrictions, such as we have almost ceased to hope for at home.

To the Public Health Committee has been referred an important communication from the British Medical Association requesting an expression of the Council's approval for a proposed Public Health Officers Bill. The Bill has a certain relation to the functions of the Council, inasmuch as it deals with the registrable qualifications of medical officers of health as well as with the conditions of their tenure. I have asked the committee to consider its terms in order that the Council may have the materials for forming a judgment as to the course it should take respecting it. The other standing committees will also present reports on matters referred to them. I have asked the Registrar to prepare a report on the measures which he has taken during the last five years for insuring the correctness of the Medical Register. This report will be printed and laid before you; it records a gratifying success in the difficult work with which he is charged. The penal business at this session is of some gravity and may occupy a considerable proportion of the Council's time. The preliminary consideration it involves is the most anxious part of the President's duties; without the willing and efficient help of your Registrar and your legal advisers and the experienced counsel of the Penal Cases Committee the responsibility of decision would be onerous indeed. This aid and advice I have had in full measure and I trust you will agree with me that each case brought before you, whatever may be its special features, is at least one that calls for inquiry by the Council as a whole.

A vote of thanks was passed to the President for his address and the text was ordered to be entered upon the minutes.

Army Medical Service Competition.

On the motion of Sir P. HERON WATSON, seconded by Dr. MCVAIL, the table showing the results of the competition held in July, 1905, for commissions in the Army Medical Service was received and entered on the minutes.

Sir P. HERON WATSON moved—

That the thanks of the Council be conveyed to the Director-General of the Army Medical Service for the return which he has again furnished to the Council, with the request that these returns may in the future continue to be furnished to the General Medical Council.

This was seconded by Dr. MCVAIL and agreed to.

Dental Business.

The Executive Committee reported with regard to the dental business transacted since the last session of the Council that the prescribed conditions having been duly fulfilled in each case the names of the undermentioned persons have been restored to the Dentists' Register, from which they had been erased in conformity with the provisions of Section 12 of the Dentists Act, 1878:—Emile H. Chapman, Horatio R. Miller, Charles W. Morrey, and William Parker.

On the motion of Dr. NORMAN MOORE, seconded by Mr. TOMES, the report was received and ordered to be entered on the minutes.

Degrees in Dental Science and Dental Surgery.

The PRESIDENT submitted a report in regard to the following resolution as to primary dental qualifications passed on May 26th, 1905:—

That the President be authorised to take the opinion of the legal advisers of the Council as to whether degrees granted in dental science and dental surgery by universities in the United Kingdom are registrable as primary qualifications to practise dentistry.

The report consisted of the opinion given by Mr. S. G. Lushington on June 5th, 1905, which was in the following terms:—

Provided that the degrees granted in dental science and dental surgery by universities in the United Kingdom are granted by universities possessing the right to choose members of the General Medical Council under Section 7 of the Medical Act, 1886, and are evidenced or accompanied as a result of examination by certificates from those universities of the fitness of the graduates to practise dentistry or dental surgery, such degrees are registrable as primary qualifications under the Dentists Act, 1878.

This clearly appears to be the result of Sections 6, 7, and 18 of the Dentists Act, 1878. By Section 6 (*a*) any person who is a licentiate in dental surgery or dentistry of any of the medical authorities shall (amongst others) be entitled to be registered under this Act. By Section 18 any person who obtains from any of the medical authorities having power for the time being to grant surgical degrees, after examination for the purpose of testing his fitness to practise dentistry or dental surgery, a certificate of such fitness, shall be a licentiate in dental surgery or dentistry of that medical authority. And by Section 7, where a person entitled to be registered under this Act produces or sends to the General Registrar the document conferring or evidencing his licence or qualification, with a statement of his name and address and the other particulars, if any, required for registration, and pays the registration fee he shall be registered in the Dentists' Register. What the Act of Parliament therefore requires in substance is the possession of a certificate of fitness granted after a test by examination by a properly qualified examining body. It does not regard the title conferred by the examining body upon the successful examinee, nor the comparative difficulty of the examination, but if the result is to establish his fitness to practise by a certificate

which may be taken as satisfactory then the Act calls him a "licentiate," and declares him entitled to be registered. The degrees in dental science and dental surgery to be granted by the University of Dublin and the Victoria University of Manchester, although they may be evidence of a greater amount of knowledge than that which is required in each of those universities respectively for the licence in dental science or the diploma in dentistry must, therefore, if they are to be primary qualifications for registration, carry with them a certificate of fitness such as the Act requires, but, if they do that, then for the purposes of the Act the holder, though he be called in his university a master in dental science or a bachelor of dental surgery is by the Act included in the generic term "licentiate in dental surgery or dentistry" within the meaning of the Act, and becomes as such entitled to be registered on production of his certificate and payment of his fees.

On the motion of Dr. LINDSAY STEVEN, seconded by Sir VICTOR HORSLEY, the opinion of Mr. Lushington was received and ordered to be entered on the minutes.

Mr. TOMES said that it was desirable to have a formal motion giving authority to the Registrar to act upon the lines of the opinion, and he moved that the Registrar be directed to accept for primary registration in the Dentists' Register certificates of degrees in dental science or dental surgery granted after examination by universities in the United Kingdom.

Sir VICTOR HORSLEY seconded the motion and it was agreed to.

Penal Cases Committee.

Professor Saundby was elected to succeed Dr. Windle as a member of the Penal Cases Committee.

The Council, after sitting *in camerâ*, adjourned until Wednesday.

WEDNESDAY, NOV. 29TH.

The time of the Council was mainly occupied in the consideration of three penal cases, each of which presented points of difficulty.

Medical News.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following candidates having passed the necessary examinations have been admitted Fellows of the College:—

R. W. Burkitt, L. L. Carlos, H. H. B. Cunningham, and T. A. Dillon.

The following have passed the primary part of the examination:—

T. J. McDonnell and H. D. Woodroffe.

The following registered practitioner having passed the necessary examination has been admitted a Licentiate of the College:—

H. W. Mason.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates satisfied the examiners:—

Final Medical Examination: Section B.—Ralph S. Oldham, George Dougan, Francis O'B. Ellison, Ernest D. Caddell, John du P. Langrishe, Archibald L. Robinson, William Hutchison, Reginald Holmes, Langford V. Hunt, John Gray, Michael Leahy, George G. Vickery, Francis Casement, and Thomas B. W. MacQuaide.

Final Dental Examination.—Charles R. Kidd.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* A University Institute of Hydrotherapy has been established under the charge of Dr. Brieger.—*Budapest:* Dr. Blaskovich has been recognised as *privat-docent* of Ophthalmology.—*Greifswald:* Dr. Karl Peter of Würzburg has been appointed Extraordinary Professor of Anatomy.—*Halle:* Dr. O. Levy has been recognised as *privat-docent* of Pathology.—*Heidelberg:* Dr. Tobler has been recognised as *privat-docent* of Children's Diseases.—*Jena:* Dr. Bodo Spiethoff has been recognised as *privat-docent* of Skin and Venereal Diseases.—*Kiel:* Dr. Piper has been recognised as *privat-docent* of Physiology.—*Leipsic:* Professor Skutsch, who was formerly on the teaching staff of the University of Jena, has been recognised as *privat-docent* of Gynæcology.—*Limoges:* Dr. Devaux has been appointed to the chair of Natural History.—*Vienna:* The late Professor Nothnagel's chair of Medicine has been offered to Dr. L. v. Krehl, professor in the University of Strasburg, who, it is believed, will accept it.—*Würzburg:* Dr. Geigel has been appointed to give the lectures on Pharmacology during the winter session in place of the late Professor Kunkel.—A new university out-patient clinic for throat and nose cases has been recently established of which Professor Seifert is in charge.

TRAGIC DEATH OF A RUSSIAN LADY MEDICAL PRACTITIONER.—At Tiflis at the town-hall many persons were killed and wounded during the political disturbances, amongst the victims being five women, one of whom was Eugenie Lazarevna Kairansky Saktreger, M.D., 28 years of age, who had only finished her curriculum at the University of Bern in 1904. She was an absolutely self-sacrificing woman, says the *Moscow Pharmätzevtitcheski Viestnik*, and when the bullets brought a number of people down she, in the midst of the cries of the wounded, hastened to assist, and for want of lint tore up her own linen in order to bind up the wounds. She had dressed the wounds of five persons and was busy with a sixth when she herself was struck by two bullets and fell dead.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at 6, Suffolk-street, Pall Mall, London, on Nov. 23rd, Dr. F. H. Champneys being in the chair.—A letter from the clerk of the Strood rural district council was read asking for the opinion of the Board as to the right of a local supervising authority to inspect a midwife not resident within its jurisdiction but from whom it had received notice of intention to practise within its district. A letter was read asking the same question from the clerk of the Alton rural district council. The Midwives Act of 1902 contains the following section numbered 8:—

Every council of a county or county borough throughout England and Wales shall, on the commencement of this Act, be the local supervising authority over midwives within the area of the said county or county borough. It shall be the duty of the local supervising authority (1) To exercise general supervision over all midwives practising within their area in accordance with the rules to be laid down under this Act.

To judge from the opinions expressed on the subject by several members of the Board it would appear that any midwife practising in one or more areas controlled by local supervising authorities is liable to inspection by the various authorities concerned. The Board decided to send replies to the two letters drawing the attention of the two rural district councils to Section 8 of the Midwives Act. A letter was received from Dr. W. E. Fothergill on behalf of the six examiners for the Manchester centre, conveying certain suggestions as to the examination system of the Board. These suggestions were ordered to be circulated amongst the members of the Board and it was decided to discuss them at some later date. A report was also received from the secretary of the Board on the October examinations for midwives; there were 471 candidates as against 311 in the examination in June, with a percentage of failures of 24 as against 22·8 in June.

NATIONAL DENTAL HOSPITAL.—The annual dinner of the past and present students of the National Dental Hospital was held on Nov. 24th at the Trocadéro Restaurant, London, W., Mr. J. Cantlie being in the chair. After the usual loyal toasts had been duly honoured the chairman proposed "The National Dental Hospital and College." He stated that a great many medical men had visited the hospital and he expressed the hope that more would do so. In the course of his remarks he explained how the Chinese dentists took out teeth with their fingers, stating, however, that they first took the precaution of salivating their unfortunate patients with mercury. Mr. P. Sidney Spokes, the dean, in replying, said that the school was continuing in its successful and prosperous career and drew especial attention to the fact that provision was made for giving a short course of instruction to medical men which was found useful for those practising in the colonies and dependencies. The chairman then distributed the prizes to the successful students during the last session. After this Sir Victor Horsley proposed the toast of "The Past and Present Students." He considered that in the interests of public health medical practitioners and dental practitioners should coöperate. He referred to the efforts that were being made to carry through Parliament a Medical and Dental Acts Amendment Bill and contended that Parliamentary candidates should be systematically canvassed on the subject. They must remember the lesson to be learned from the importunate widow in the Bible and act

accordingly. If the medical profession and the dental profession went hand in hand in pushing forward the passing of the required Act they were bound to gain their point. Mr. W. Rushton proposed the toast of "The Visitors," which was acknowledged by Mr. A. S. Underwood. The toast of "The Chairman" was intrusted to Mr. K. W. Goadby who discharged this duty in a neat and effective speech and after this had been duly acknowledged by the chairman the official part of the programme for the evening was concluded. Many of the company, however, remained later to enjoy an excellent musical entertainment

SOCIETY OF ARTS.—At an ordinary meeting of the Society of Arts held on Nov. 22nd Mr. F. Martin-Duncan delivered a discourse on the Kinematograph and its Applications, illustrated by a great number of pictures shown on the screen. He commenced by a brief reference to the phenomenon of the persistence of vision and to the observations of Claudius Ptolemy on the colour of a rotating disc, after which he explained the construction of the camera which he used for taking successive photographs of moving objects. He also said that in the early days of kinematography one of the chief troubles was the "jumping" of the pictures but that such great improvements in the details of the photographic and projection processes had been made, especially by Mr. Charles Urban, that the movements of the objects represented were now quite natural. The objects or scenes depicted might be classified under the following headings:—(1) usages of uncivilised peoples; (2) colonial industries; (3) home industries; (4) geography; (5) physics; (6) microscopy; and (7) zoology. Class 1 was illustrated by native dances; Class 2 by tree-felling in Canada and the great salmon fisheries on the Mackenzie River in North-West Canada; Class 3 by the construction of a railroad and the building of a locomotive engine; Class 4 by views of the Falls of Niagara and the Colosseum in Rome (people walking about and flying kites in the arena), and Class 5 by views of the vortices produced when air was blown into smoke or *vice versâ*. The objects displayed under Class 6 included the circulation of granules in the cells of plants, the circulation of blood in the web of the frog and the tail of the goldfish, the movements of hydra viridis, and several views showing the habits of the wood ant. The illustrations in Class 7 were excellent reproductions of the movements and facial expressions of various creatures in the Zoological Gardens of London.

THE ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the past and present students of the Royal Dental Hospital of London was held in the Whitehall Rooms of the Hôtel Métropole on Nov. 25th. At one time, and not many years ago, the chief subject of the speeches delivered on the occasion of the annual dinner of the staff and past and present students of the Royal Dental Hospital of London was, naturally enough, the scheme of the new hospital; later it was the approaching completion of the new buildings in Leicester-square; and at length, when the new hospital was occupied, the speakers one and all agreed what a good thing had been done and expressed astonishment as to how it had been possible to carry out the philanthropic and educational work in the old buildings. An appeal for funds, it need hardly be added, always formed the inevitable peroration to the speeches and that appeal is not less strong or less urgently made at the present time. The speakers on this occasion for the most part dwelt on the great progress made in dental science during the past decade and on the significant part contributed to that progress by the students of the Royal Dental Hospital of London. It was pointed out, too, how the workers in that school had fought hard to extricate dentistry, as Mr. C. H. Golding-Bird put it, "from the slump of charlatanism." In giving the toast of "The Hospital and School" he congratulated the staff and school on having within three years of the celebration of its jubilee raised the professional status of the dentist to its present high level. He urged them to pursue this end more and more assiduously and to uphold the worthy traditions of their *alma mater*. He had recently visited the hospital in Leicester-square and was very impressed, he said, with the completeness—and yet without particular luxury—of the equipments there. He noted amongst other things that the doctrine of the aseptic mouth was one of the cardinal points in the teaching. The chairman, Mr. Leonard Matheson, in giving the toast of "The Past and Present Students," referred to the delights which this annual coming together of the past and present students of the hospital conferred upon them and amongst other things how it served to preserve a *camaraderie* amongst them which was bound to be helpful in regard to the interests of both dental science and the public health. He welcomed the students on that occasion, as their presence showed that they did honour to their *alma mater*. The toast of "The Visitors" (which included several representatives of the London medical schools) was proposed by Mr. W. H. Dolamore and was responded to by Dr. C. Addison, while that of "The Chairman" was proposed by Mr. John Ackery.

BOOKS, ETC., RECEIVED.

AMERICAN LARYNGOLOGICAL ASSOCIATION, New York.

Transactions of the Twenty-seventh Annual Meeting of the American Laryngological Association, held at Atlantic City, N.J., June 1st, 2nd, and 3rd, 1905. Price not stated.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Nouveau Traité de Médecine et de Thérapeutique. Publié en Fascicules sous la Direction de MM. P. Brouardel et A. Gilbert. IV. Maladies Communes à l'Homme et aux Animaux. Tuberculose, Scrofule, Actinomycose, Charbon, Psittacose, Rage, Tétanos, Ladrerie, Trichinose, Ankylostomose. Par MM. Mosny, L. Bernard, Gallois, Menetrier, Gilbert et Fournier, Vaillard, Deschamps, P. Brouardel et Guiart. Price Fr. 8.

CHURCHILL, J. AND A., 7, Great Marlborough-street, W.

The National Standard Dispensatory. Containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines. Including those recognised in the Pharmacopœias of the United States, Great Britain, and Germany, with Numerous References to other Pharmacopœias. In accordance with the Eighth Decennial Revision of the United States Pharmacopœia, 1905. By Hobart Amory Hare, B.Sc., M.D., Professor of Therapeutics and Materia Medica of the Jefferson Medical College of Philadelphia; Charles Caspari, Jr., Ph.G., Phar. D., Professor of Theoretical and Applied Pharmacy in the Maryland College of Pharmacy (Department of Pharmacy in the University of Maryland), Baltimore; Henry H. Rusby, M.D., Professor of Botany and Materia Medica in the College of Pharmacy of the City of New York (Columbia University); Joseph F. Geisler, Ph.C., Chemist, New York State Dept. of Agriculture; Edward Kremers, Ph.D., Professor of Chemistry, Univ. of Wisconsin; and Daniel Base, Ph.D., Professor of Inorganic and Analytical Chemistry, Univ. of Maryland. Price 31s. 6d. net.

DEUTSCHES VERLAGSHAUS BONG UND CO., Berlin, Leipzig, Wien, Stuttgart, und Paris.

Höhenklima und Bergwanderungen in ihrer Wirkung auf den Menschen. Ergebnisse experimenteller Forschungen im Hochgebirge und Laboratorium. Von Dr. N. Zuntz, Geh. Reg.-Rat, ord. Professor a.d. landw. Hochschule, Berlin; Dr. A. Loewy, Universitäts Professor, Berlin; Dr. Franz Müller, Privatdozent a.d. Universität, Berlin; und Dr. W. Caspari, Privatdozent a.d. landw. Hochschule, Berlin. Erste Auflage. Price not stated.

F. A. DAVIS COMPANY, 1914–16, Cherry-street, Philadelphia.

Operative Surgery. For Students and Practitioners. By John J. McGrath, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School, Surgeon to the Harlem, Post-Graduate, and Columbus Hospitals, New York. Second edition, thoroughly revised. Price $4.50 net.

FISCHER, GUSTAV, Jena.

Die Morphologie der Missbildungen des Menschen und der Tiere. Ein Lehrbuch für Morphologen, Physiologen, Praktische Aerzte und Studierende. I. Teil. Allgemeine Missbildungslehre (Teratologie) Eine Einführung in das Studium der Abnormen Entwicklung. Von Dr. Ernst Schwalbe, A.O. Professor der Allgemeinen Pathologie und Pathol. Anatomie an der Universität Heidelberg. Price M.6.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U.S.A., with collaboration. Volume III. Fifteenth series, 1905. Price not stated.

KIMPTON, HENRY, 13, Furnival-street, Holborn, E.C.

A Manual of Practical Hygiene for Students, Physicians, and Medical Officers. By Charles Harrington, M.D., Assistant Professor of Hygiene in the Medical School of Harvard University. Third edition, revised and enlarged. Price 21s. net.

A Practical Treatise on Fractures and Dislocations. By Lewis A Stimson, B.A., M.D., LL.D. (Yalen), Professor of Surgery in Cornell University Medical College, New York, Surgeon to the New York and Hudson St. Hospitals. Fourth edition, revised and enlarged. Price 25s. net.

KÜNDIG, HENRY, 11, Corraterie, Geneva.

Le Livre de la Sage-Femme et de la Garde. Suivi de quelques Mots sur le Traitement du Cancer de l'Utérus. Avec un Agenda Obstetrical et 60 feuilles d'Observations. Par le Dr. E. De Seigneux, Privat-docent à l'Université de Genève. Price not stated.

MACLEHOSE, JAMES, AND SONS, Glasgow.

Public Health Administration in Glasgow. A Memorial Volume of the Writings of James Burn Russell, B.A., M.D., LL.D., Medical Member of the Local Government Board for Scotland, and formerly Medical Officer of Health for Glasgow. Edited by A. K. Chalmers, M.D., Medical Officer of Health for Glasgow. Price not stated.

NUTT, DAVID, 57-59, Long Acre, W.C.

Mr. Ubbledejub and the House Fairies. By A. Thorburn. With Illustrations by May Farady and Dorothy Newill. Price 2s.

OLIVER AND BOYD, Tweeddale-court, Edinburgh; 10, Paternoster-row, E.C.

Sanitary Laws of Scotland and Principles of Public Health. Being a Manual for County and Burgh Councillors, Legal Officials, Medical Officers of Health, Sanitary Inspectors and all interested in Public Health. By W. J. Brock, D.Sc. (Public Health), M.B., C.M. and F.R.S. (Edin.), F.F.P.S. (Glasg.), Memb. Roy. Institute of Public Health; Medical Officer of Health for Midlothian, West Lothian, and Peeblesshire, and for the Burghs of Linlithgow, Queensferry, Whitburn, and Innerleithen. Price 7s. 6d. net.

RUDEVAL, F. R. DE, 4, Rue Antoine Dubois (VI^e), Paris.

Précis de Laryngologie Clinique et Thérapeutique. Maladies du Pharynx et du Larynx. Par le Dr. P. Lacroix, Membre de la Société de Laryngologie et d'Otologie de Paris. Price Fr. 8.

SOCIÉTÉ COOPÉRATIVE "VOLKSDRUKKERIJ," Rue Hautpert, 29, Gand. (VIGOT FRÈRES, Paris.)

Portez-vous Bien! Notions élémentaires d'Hygiène Populaire et Rationnelle. Troisième Edition, revue et augmentée. Par le Dr. Terwagne. Price Fr. 1.50.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Traité de Médecine Opératoire et de Thérapeutique Chirurgicale. Publié sous la Direction de Paul Berger et Henri Hartmann. Chirurgie Oto-Rhino Laryngologique (Oreille, Nez, Sinus de la Face, Pharynx, Larynx et Trachée). Par Georges Laurens, Ancien Assistant d'Oto-rhino-laryngologie des Hôpitaux de Paris. Price Fr. 30.

STUBER, A., Würzburg.

Anatomischer Atlas in Stereoskopischen Röntgenbildern. I. Normale Anatomie. I. Abteilung: Knochen und Gelenke. Von Dr. Ernst Sommer, Specialarzt für Physikalische Therapie, Winterthur (Schweiz). Price M.10.

UNWIN, T. FISHER, Paternoster-square, E.C.

The Nature and Origin of Living Matter. By H. Charlton Bastian, M.A., M.D., F.R.S., F.L.S. Price 12s. 6d. net.

VOGEL, F. C. W., Leipzig.

Lehrbuch der Physiologie des Menschen. Von G. von Bunge, Professor in Basel. Zweite, vermehrte und verbesserte Auflage. Erster Band. Sinne, Nerven, Muskeln, Fortpflanzung in Neunundzwanzig Vorträgen. Price M.11. Zweiter Band. Ernährung, Kreislauf, Athmung, Stoffwechsel in Sechsunddreissig Vorträgen. Price M.17.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ASH, ALFRED EDWIN, M.D. Vict., has been appointed District Medical Officer by the Honiton (Devon) Board of Guardians.

BALLANTYNE, H. S., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Dalkeith District of the county of Edinburgh.

BLAKENEY, JOHN HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer by the Cheltenham Board of Guardians.

COLLINS, OCTAVIUS AUGUSTUS GLASIER, B.A., B.C. Cantab., has been appointed Medical Officer to the Bath Statutory Hospital for Infectious Diseases at Combe Down.

ELKINGTON, E. A., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Newport District of the county of Salop.

HEDDEN, RICHARD, L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed Medical Officer to the Union Workhouse by the Honiton (Devon) Board of Guardians.

KERR, HAROLD, M.B., Ch.B. Edin., D.P.H. Camb., has been appointed Assistant Medical Officer of Health to the County Borough of Bury.

LUMSDEN, J. H., M.B., M.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Denny District of the county of Stirling.

POTTINGER, J. A., M.D., Ch.B. Edin., has been appointed Resident Surgeon to the Provincial Hospital, Port Elizabeth, South Africa.

ROSSITER, GEORGE FREDERICK, M.B. Lond., M.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the Weston-super-Mare Hospital.

SANDERS, J. HERBERT, M.D., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Assistant Anæsthetist to the Central London Throat and Ear Hospital, W.C.

SANDWITH, F. M., M.D. Durh., F.R.C.P. Lond., has been appointed Lecturer on Tropical Diseases at St. Thomas's Hospital Medical School.

SARGENT, PERCY W. G., M.A., M.B., B.C. Cantab., F.R.C.S. Eng., has been appointed Assistant Surgeon to St. Thomas's Hospital.

SCHOFIELD, F. W., M.B., Ch.B. Vict., has been appointed Second Assistant Medical Officer to the City Hospital, Sheffield.

STEPHENSON, SYDNEY, M.B., C.M. Edin., has been appointed Ophthalmic Surgeon to the Queen's Jubilee Hospital.

SYMONS, WILLIAM HENRY, M.D Brux., D.P.H. Oxon. and Durh., has been appointed Superintendent to the Bath Statutory Hospital for Infectious Diseases at Combe Down.

TEMPLE, GEORGE H., M.B., C.M. Edin., has been appointed Honorary Surgeon to the Weston-super-Mare Hospital.

TIGHE, JOHN BROSNAN, M.B., B.Ch. Irel., has been appointed Senior Assistant Medical Officer to the North Riding Asylum of Yorkshire.

WATERHOUSE, RUPERT, M.D. Lond., L.R.C.P. Lond., has been appointed Assistant Physician to the Royal United Hospital, Bath.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE, War Office, S.W.—Forty Commissions in the Royal Army Medical Corps.

BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Honorarium at rate of £25 quarterly, with apartments, board, and washing.

BEXLEY, KENT, LONDON COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road.—House Surgeon. Salary £80, with board, lodging, and washing.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Assistant House Surgeon. Salary at rate of £50 per annum, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—House Surgeon, non-resident. Honorarium 40 guineas per annum.

CHALFONT COLONY FOR EPILEPTICS.—Honorary Dental Surgeon.

CLIFTON, YORK, NORTH RIDING ASYLUM.—Second Assistant Medical Officer. Salary £150, rising to £200, with board, lodging, washing and attendance.

DORCHESTER, COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £180, rising to £220.

DURHAM COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £190 per annum (rising to £230), with rooms, board, laundry, and attendance.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board, lodging, and washing.

GREENWICH, LONDON SCHOOL OF CLINICAL MEDICINE.—Medical Superintendent of the Hospital and School. Salary £300 per annum and fees.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence. Also Assistant Surgeon. Also non-resident Casualty Medical Officer. Salary £200 per annum, with lunch.

INDIAN MEDICAL SERVICE, India Office, London.—Twenty-one Commissions in His Majesty's Indian Medical Service.

LEEDS PUBLIC DISPENSARY.—Honorary Surgeon. Also Four Honorary Medical Officers.

LIMPLEY STOKE HYDRO, near Bath.—Resident Medical Officer.

LIVERPOOL STANLEY HOSPITAL.—Honorary Ophthalmic Surgeon.

LIVERPOOL, TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, washing, and apartments.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Honorarium at rate of £75 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Visiting Surgeon. Honorarium £100 per annum.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Two Medical Officers. Salaries £65 and £60 per annum, with board and residence.

MIDDLESEX HOSPITAL.—Medical Officer and Registrar to the Cancer Wing. Salary £100 per annum, with board and lodging.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Junior House Physician. Salary £50 per annum, with board and residence.

NORFOLK AND NORWICH HOSPITAL.—Second Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

PADDINGTON-GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Anæsthetist.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant House Surgeon for six months, renewable. Salary £50, with board, residence, and washing.

QUEEN'S JUBILEE HOSPITAL, Earl's Court, S.W. — Honorary Pathologist.

ROYAL COLLEGE OF PHYSICIANS.—Milroy Lecturer for 1907.

ROYAL PIMLICO DISPENSARY, 104, Buckingham Palace-road.—Resident Medical Officer and Secretary. Salary £100, unfurnished house, and percentage.

ST. BARTHOLOMEW'S HOSPITAL.—Physician.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Out-patient Clinical Assistants for six months.

SEAMEN'S HOSPITAL SOCIETY, Greenwich.—Four Assistant Physicians and Three Assistant Surgeons.

STOCKPORT INFIRMARY.—House Surgeon. Salary £100 per annum. Also Assistant House and Visiting Surgeon. Salary £80 per annum. Both with board, washing, and residence.

SUSSEX COUNTY HOSPITAL.—Second House Surgeon and Assistant Anæsthetist, unmarried. Salary £60 per annum, with board and residence.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, and attendance.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.—Surgeon for Orthopædic cases.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £80 per annum, with board and residence.

YORK CITY LUNATIC ASYLUM.—Assistant Medical Officer, unmarried. Salary £140, with board, residence, attendance, and washing.

Births, Marriages, and Deaths.

BIRTHS.

FLEMING.—On Nov. 19th, at Didworthy, South Brent, Devon, the wife of Julian C. Fleming, M.R.C.S., L.R.C.P., of a daughter.

HUDSON.—On Nov. 20th, at West Cliff, Dawlish, the wife of Captain Corrie Hudson, D.S.O., I.M.S., 2nd Q.O. Rajput L.I., of a daughter.

KEELE.—On Nov. 23rd, at Highbury-grove, N., the wife of David Keele, M.R.C.S., L.R.C.P., of a son.

MACEVOY.—On Nov. 25th, at 41, Buckley-road, Brondesbury, N.W., the wife of H. J. Macevoy, M.D., B.Sc. Lond., of a daughter.

DEATHS.

JONES.—On Nov. 21st, at River House, Enfield, Philip William Jones, L.R.C.P., M.R.C.S.

MCNEILL.—On Nov. 19th, at Lynton, Hook-road, Surbiton, John Patrick McNeill, M.D., formerly of Sydney (New South Wales), aged 56 years.

TAYLOR.—On Nov. 15th, at Loraine-road, Holloway, N., Charles Taylor, M.R.C.S., aged 75 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*Express and Echo (Devon), Army and Navy Gazette, Islington Gazette, Hampstead Express, Globe, Belfast Whig, Birmingham Weekly Post, Sun, Sheffield Telegraph, Notts Express, Glasgow Citizen, Yorkshire Observer, Leicester Advertiser, Portsmouth Independent, Newcastle Chronicle, Cardiff Mail, Bury Times, Middlesex County Times, Manchester Guardian, York Herald, &c.*

Notes, Short Comments, and Answers to Correspondents.

THE PROGRESSIVE MEDICAL ALLIANCE.

JUSTICE has at length overtaken some of the members of the Progressive Medical Alliance. Not content with swindling their fellow creatures by means of quack medicine and advice they must needs fly at higher game and try their hand at forgery. For 12 days Talbot Bridgwater, "medical specialist"; Lionel Peyton Holmes, dispenser; William Edward Shakell, surveyor; and Elizabeth Foster, unregistered medical practitioner, have been on their trial at the Central Criminal Court for conspiracy and forgery. Of Foster we will say nothing except that she was found not guilty of forgery but was remanded in custody for trial at the coming sessions on another charge. The three other prisoners were found guilty and Bridgwater, as the engineer of the whole scheme, was awarded seven years' penal servitude, Shakell five years, and Holmes 15 months' hard labour. So falls to pieces a most dangerous gang of criminals. It was proved beyond doubt that Bridgwater engineered and financed crime and his so-called medical institution was probably mainly a blind for criminality. We have upon previous occasions, notably during the latter part of the year 1900 and the first half of the year 1901, called attention to the doings of the Progressive Medical Alliance, but owing to the state of the law nothing could be done to stay its proceedings. The "physicians and specialists" who worked it were not upon the Medical Register, so that the General Medical Council had no jurisdiction, and British law allows any person, however ignorant or even criminal he may be, to practise medicine so long as he does not imply that he is registered. Therefore the Alliance was free to deceive as many dupes as came to its net. It was in February of this year that the law began to take cognisance of Bridgwater in connexion with forgery, Holmes being the accused. This first trial proved abortive but justice has at length been done.

THE MANUFACTURE OF BOVRIL.

OVER 1000 medical men availed themselves of the opportunity afforded them by the proprietors of Bovril, Limited, of visiting the Bovril factory in Old-street, E.C., on Nov. 23rd, when all the processes involved in the preparation of bovril and bovril products were watched with considerable interest. The chief department is that concerned in the mixing of concentrated extract of beef (which is imported from the Bovril Canadian factory) with the pure finely powdered albumin and fibrin of the meat, thus giving to bovril the quality of a true reparative as well as that of a stimulant. Everything pointed to a perfectly clean environment and special care is taken to keep the preparations unsullied by contact with unclean appliances or the human hand. In another department the process of making virol was explained. Virol, as we have shown in our analytical columns, is made from bone marrow, eggs, malt extract, and raw lemon juice. It is being extensively employed as a substitute for cod-liver oil and it has been also successfully prescribed in anæmia and wasting diseases. It has also been used as a special food for infants. Another department which attracted a good deal of interest was that in which Kudos cocoa and chocolate were being made. These preparations contain meat albumin and care is taken to use only pure cocoa and pure sugar in the manufacture. The product clearly contains all classes of food material, proteid, fat, and carbohydrate, with the addition of the stimulating principles of the cocoa bean. Following the interesting inspection a lunch was provided, the visitors being received by Lord Duncannon who succeeded Lord Playfair in the chairmanship of the company.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—I shall be much obliged if any of your readers can tell me of any home or institution where an educated single woman suffering from a slight form of moral insanity could be received for her confinement. Her friends are able to pay a reasonable fee.

I am, Sirs, yours faithfully,

EDWARD GOODDY.

Glenthorn, Trinity-square, Llandudno, Nov. 28th, 1905.

WOVEN GAUZE SURGICAL PADS.

THE gauze pad has almost entirely replaced the marine sponge in the practice of nearly all surgeons. The natural sponge is still commonly employed in operations on the mouth and pharynx but hardly anywhere else. In these circumstances the importance of gauze surgical pads is obvious. The methods employed in different hospitals vary but usually the gauze as supplied by the manufacturers is cut up into suitable sizes and these pieces are then stitched to form the pads. When the large number of gauze pads used is considered, the time employed by the nurses in making them can be seen to be very great. An attempt has been recently made to manufacture the pads so that but little requires to be done

to them. Some samples of these pads have been sent to us by Dr. Frederic Griffith of New York. They consist essentially of tube-like structures of gauze of the required number of layers; pieces of the required length can be cut off and the sponge is almost finished. In another pattern the sponges are made in squares and the selvedge merely has to be cut through. There is certainly a saving of labour in the preparation of sponges by this method and there are not so many ravelling ends. Sponges of any size can be made. We are inclined to think very favourably of these surgical pads.

CHEESE AS A DIET.

WE have received a little pamphlet entitled, "The Claims of Cheese as an Article of Diet," by Dr. F. T. Bond of Gloucester. Dr. Bond adduces cogent arguments why cheese should come more into favour as an article of diet. Firstly, it is wholesome, nitrogenous, and almost free from purin bodies; and, secondly, if cheese were to be more consumed than it is an important branch of British agriculture would be revived. Dr. Bond gives an account of the leading types of cheeses which are mainly divided into hard and soft. The latter, of course, is the common cream cheese. But there is a type of cheese which is never seen, so far as we know, in England and that is the barely curdled kind so well known in Brittany as "fromage à la crème." There are two Scottish milk preparations which are somewhat similar—namely, Corstorphine cream and "hatted kit." English dairymen might well turn their attention to these three preparations the only objection to which for the inhabitants of large towns is that they have to be made of fresh milk and that they will not keep. Some little time ago Dr. Bond devised a cheese known as Little Gloucester, which is a cream cheese that can be eaten when "half ripe." In this state it is eminently digestible. Dr. Bond's pamphlet contains sound advice and we hope that dairymen, cooks, and consumers will study its principles and will profit by them.

POISON IN EGGS.

A CORRESPONDENT writes to us concerning the note which appeared in the letter from Paris upon the above subject in THE LANCET of Nov. 25th. He says that if he eats eggs in any form he has all the symptoms, more or less pronounced, of irritant poisoning. There is nothing remarkable in this, for many persons are affected in like manner by articles of food. Some persons cannot eat strawberries, to others mutton is poison, and many persons dare not eat crab. But there is one noteworthy point about our correspondent's idiosyncrasy. He says that he can eat eggs in the form of Christmas pudding and he attributes the immunity from poisoning in this case to the length of time during which the pudding is boiled. In this we should think that he is right in part, but we also suggest that the addition of the spices and of the brandy or rum which is generally put into Christmas pudding may have something to do with the result.

A DRESSING FOR USE AFTER CIRCUMCISION.

WE have been supplied by the inventor with some samples of this dressing. It consists of boric gauze faced with a form of amadou and it is intended to be used as follows. The dressing is soaked in boiling water for a few seconds and then allowed to cool. The edges of the wound having been adjusted the dressing is applied and an elastic ring is passed over it and gently tightened. After 24 hours the dressing is moistened with a little warm water and it is then readily removed as it does not tend to adhere. A fresh dressing is then applied. We consider the dressing to be suitable for the purpose for which it is intended. It can be obtained from Messrs. Krohne and Sesemann, 37, Duke-street, Manchester-square, W., and 152, Whitechapel-road, London, E.

THE PRACTICAL LIVES OF THE BLIND.

Dr. George M. Gould, editor of *American Medicine*, will be grateful for any trustworthy information as to the methods which have been devised by the blind in overcoming their disability or in gaining a livelihood. He is asking that accounts of such lives, anecdotes, and references to literature should be sent to him at his residence, 1722, Walnut-street, Philadelphia, U.S.A.

Exor.—The point is one upon which it is almost impossible for an outsider to give a decision. We think that the purchaser having entered into an agreement to purchase the stock of drugs, presumably as it stood, should not afterwards have increased the stock at the expense of the vendor without notifying the vendor of his intention. If, however, the stock had run down, it was necessary that it should be replenished, and possibly the purchaser believed that his agreement to purchase the stock implied a purchase of the stock when brought up to the necessary pitch of efficiency. From the vendor's account the purchaser seems wrong but the purchaser might be able to put a different complexion upon the matter.

Vera is recommended to place no credence in such absurd superstitions. The causes of sleep-walking are many and medical advice may be required.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 30th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks
Nov. 24	29·78	W.	0·10	63	49	39	39	40	Foggy
,, 25	29·81	S.	...	55	49	38	40	41	Foggy
,, 26	29·20	S.W.	0·02	59	55	41	44	46	Stormy
,, 27	29·56	W.	0·27	68	47	41	40	42	Fine
,, 28	29·54	S.W.	...	56	48	42	44	45	Cloudy
,, 29	29·77	N.E.	0·08	54	49	44	44	45	Raining
,, 30	30·02	S.	0·01	47	46	38	42	43	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (4th).—SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Dr. J. A. Fleming: The Measurement of High Frequency Currents and Electric Waves. (Cantor Lectures.) (Lecture II.)

TUESDAY (5th).—PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Card Specimens will be shown by Dr. H. W. Gardiner and Dr. Foulerton. Papers:—Dr. A. G. R. Foulerton: (1) Columnar-celled Carcinoma of the Testicle; (2) Mixed-celled (columnar and squamous) Carcinoma of the Stomach.—Dr. M. Smith: Giant Cells in Tumours of the Thyroid Gland.—Dr. J. G. Forbes: Tuberculous Adenitis with Congenital Bronchiectasis and Cirrhosis of the Liver and Pancreas.—Dr. F. J. Poynton: Note on Fundus of Eye from Case of Amaurotic Family Idiocy.

WEDNESDAY (6th).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Mr. W. G. Nash, Mr. Doran, Dr. F. E. Taylor, and Dr. Horrocks. Short Communication:—Dr. F. E. Taylor: On the Presence of Sarcomatous Tissue on the Walls of Ovarian Cysts. Discussion on Ventral Fixation and its Alternatives (opened by Dr. Herman).

THURSDAY (7th).—CHILDHOOD SOCIETY AND THE BRITISH CHILD-STUDY ASSOCIATION (Parkes Museum, Margaret-street, W.).—8 P.M. Discussion on Infant Classes (opened by Dr. J. Kerr, Prof. H. R. Kenwood, Miss Phillips, and Miss Findlay). (Arranged by the Childhood Society.)

NORTH-EAST LONDON CLINICAL SOCIETY (Tottenham Hospital, N.).—4 P.M. Discussion on Some Midwifery Difficulties (opened by the President, Mr. C. H. Hutt).

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Discussion on the Attitude of the Medical Profession towards Insanity (opened by Dr. J. S. Tuke).

BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Papers:—Dr. R. T. Smith: On a Case of Associated Pyosalpinx and Appendicitis.—Dr. Purcell: A Case of Broad Ligament Cyst with Injury to Ureter and subsequent Rectification. Adjourned Discussion on Dr. S. Savage's paper on Hæmatoma of the Ovary.

NEUROLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Pathological Meetin .

RÖNTGEN SOCIETY (20, Hanover-square, W.).—8.15 P.M. Paper:—Mr. J. B. Burke: The Spontaneous Action of Radium and other Bodies on Gelatine Media.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—5 P.M. Papers:—Dr. W. Tyson (Folkestone): Some Remarks on the Prevention of Appendicitis.—Dr. S. Heaney (Blackpool): The Climatology of the Fylde Coast.

FRIDAY (8th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—Papers:—Mr. J. Clarke: The Present Position of the Treatment of Congenital Hip-Dislocation.—Dr. E. W. Goodall: A Case of Typhoid Fever with Peritonitis but no Perforation in which Laparotomy was performed.—Mr. W. G. Spencer: Septic Peritonitis occurring early in the Course of Typhoid Fever apart from Perforation.—Mr. T. H. Kellock: A Case of Traumatic Pancreatic Pseudo-cyst.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (4th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. M. H. Macleod: Clinique. (Skin.) 5.15 P.M. Dr. J. Morrison: The Treatment of the Early Days of the Puerperium.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: Acute Pneumonia. (Lecture I.)

TUESDAY (5th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Fawcett: Clinique. (Medical.) 5.15 P.M. Dr. D. Somerville: Errors of Digestion in Relation to Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Paget: Surgical Cases.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. R. Russell: Tumours of Spinal Cord.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Mr. H. W. Carson: Malignant Disease of the Rectum.

WEDNESDAY (6th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. P. J. Freyer: Clinique. (Surgical.) 5.15 P.M. Mr. H. L. Barnard: Diseases of the Gall-Bladder and Bile Ducts.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Young: Bronchiectasis in Children.

UNIVERSITY COLLEGE, LONDON (Gower-street, W.C.).—4 P.M. Clinical Lecture:—Sir Victor Horsley: Diagnosis of Spinal Cord Lesions and their Surgical Treatment.

THURSDAY (7th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. A. H. Tubby: Surgical Diseases of Children.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. R. Lloyd: Anæsthetics. (Lecture I.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Thursfield: Chronic Dyspepsia in Older Children.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Lecture:—Dr. Roberts: Cases from the Wards.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Bosanquet: Demonstration of Medical Cases. (Post-Graduate Course.)

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M. Dr. M. Dockrell: Fungous Diseases of Hair: III., Favus; IV., Leptothrix. (Chesterfield Lecture.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Mr. H. Barwell: The Nose and Throat in Chest Diseases. (Lecture I.) (Post-Graduate Course.)

FRIDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. R. Lake: Clinique (Ear.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Abraham: Cases of Skin Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. R. Russell: Subacute Degeneration of Cord.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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